PRELIMINARY REPORT ON THE FOURTH SEASON OF THE DANISH-GERMAN JERASH NORTHWEST QUARTER PROJECT 2014

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Introduction

Between 21st July and 30th August 2014, the Danish-German team from the University of Aarhus (Denmark) and Ruhr-University Bochum (Germany) conducted its fourth campaign in the Northwest Quarter of the ancient city of Gerasa, modern Jarash in the northwest of Jordan. Based on the results of the previous campaigns, which included architectural, geodetic and geophysical surveys, as well as two excavation campaigns in which a total of seven trenches had been excavated, it was decided to lay out five additional trenches in 2014[1], in order to gain further insight into the settlement history of the Northwest Quarter of the city, which has the highest elevation of the area within the ancient city walls, and which since 2011 has been the objective of our research in Jarash. The project is funded by the Carlsberg Foundation, the German Research Foundation (DFG) and H.P. Hjerl Hansens Mindefondet for Dansk Palæstinaforskning[2]. We would like to thank the Director General of the Department of Antiquities (DoA), Dr. Munther Jamhawi, who granted permission for the 2014 campaign, as well as the Director of the Department of Antiquities in Jarash, Ahmad Shami for his and his staff's support during our campaign. Furthermore, thanks go to our representatives Ali Oweisi and Akram Atoum, who were an invaluable help during the campaign.

As noted above, the main objective of the campaign was to gain further insight into the settlement history of this prominent area of the city. Additional objectives were to extend the geodetic net of fix-points for further investigations, undertake a surface survey on the south slope, and re-open a trench which had been excavated in 1983[3]. Five trenches in total (I–M; **Fig. 1**) were laid out on top of the hill, on the northern slope, and on the southern slope on the western limit of a large cistern. Minor follow-up investigations were undertaken at Trenches E and G, which had been excavated the previous year. The sites for the new trenches were based on the results of the 2011 to 2013 campaigns.

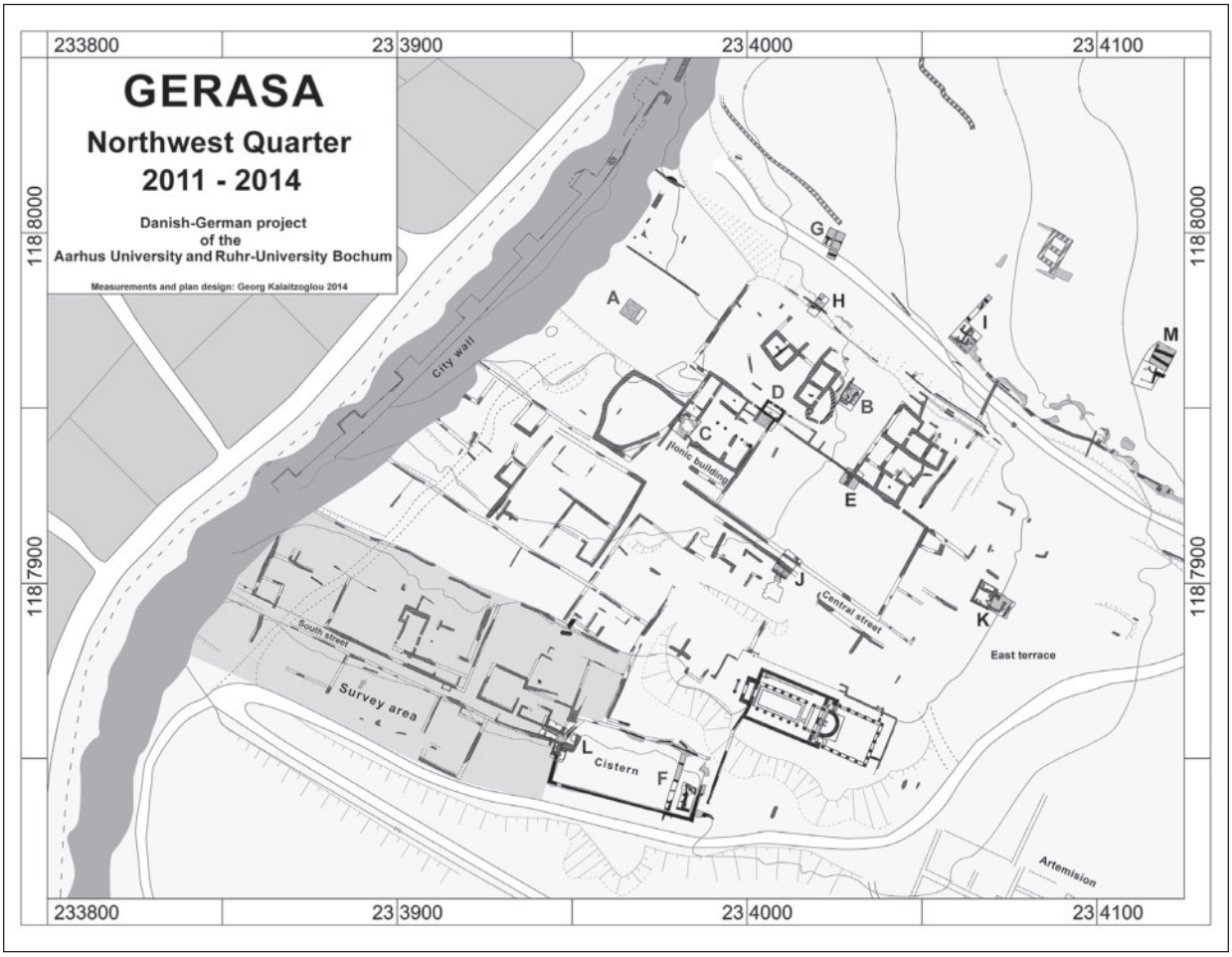
Important information concerning urban organization, street layout and infrastructure of the Northwest Quarter resulted from the 2014 campaign[4]. We were finally able to positively determine that the North Decumanus did not extend further to the west than where it had been excavated close to the North Theatre

1. See Lichtenberger and Raja 2012, and Kalaitzoglou, Lichtenberger and Raja 2012 for the 2011 campaign; Kalaitzoglou, Lichtenberger and Raja 2017 and Lichtenberger, Raja and Sørensen 2013 for the 2012 campaign; and Kalaitzoglou, Lichtenberger and Raja 2017 and Lichtenberger, Raja and Sørensen 2017 for the 2013 campaign.

2. The team consisted of Achim Lichtenberger and Rubina Raja (co-directors), Georg Kalaitzoglou (field director), Annette Højen Sørensen (head of registration), Jens Christian Pinborg (architect), Margit Petersen (conservator), Pernille Bangsgaard Jensen (palaeozoologist). Field and registration team: Anders Meander Bjerggaard, Philip Ebeling, Till Flüchter, Pawel Grüner, Niels Benjamin Hansen, Ditte Maria Damsgaard Hiort, Charlotte Bach Hove, Anne Ditte Koustrup Høj, Hans-Peter Klossek, Signe Bruun Kristensen, Nadia Schmidt Larsen, Line Egelund Nielsen, Sara Ringsborg, Ulrike Rübesam and Janek Sundahl. Alf Hilding Lindroos (geologist, Åbo University, Finland) took mortar samples for ^{14}C-AMS-analysis (Accelerator Mass Spectrometry) and Peter Fink Jensen (geologist) conducted hand-held spectrometer testing during the field season.

3. Clark and Bowsher 1986. This trench was opened in order to trace the possible course of the North Decumanus.

4. See e.g. Kraeling (ed.) 1938; Zayadine (ed.) 1986; Seigne 1992; Kennedy 2007; Kehrberg 2011; Raja 2012, 137–189 for an urban plan and layout of Gerasa/Jarash.



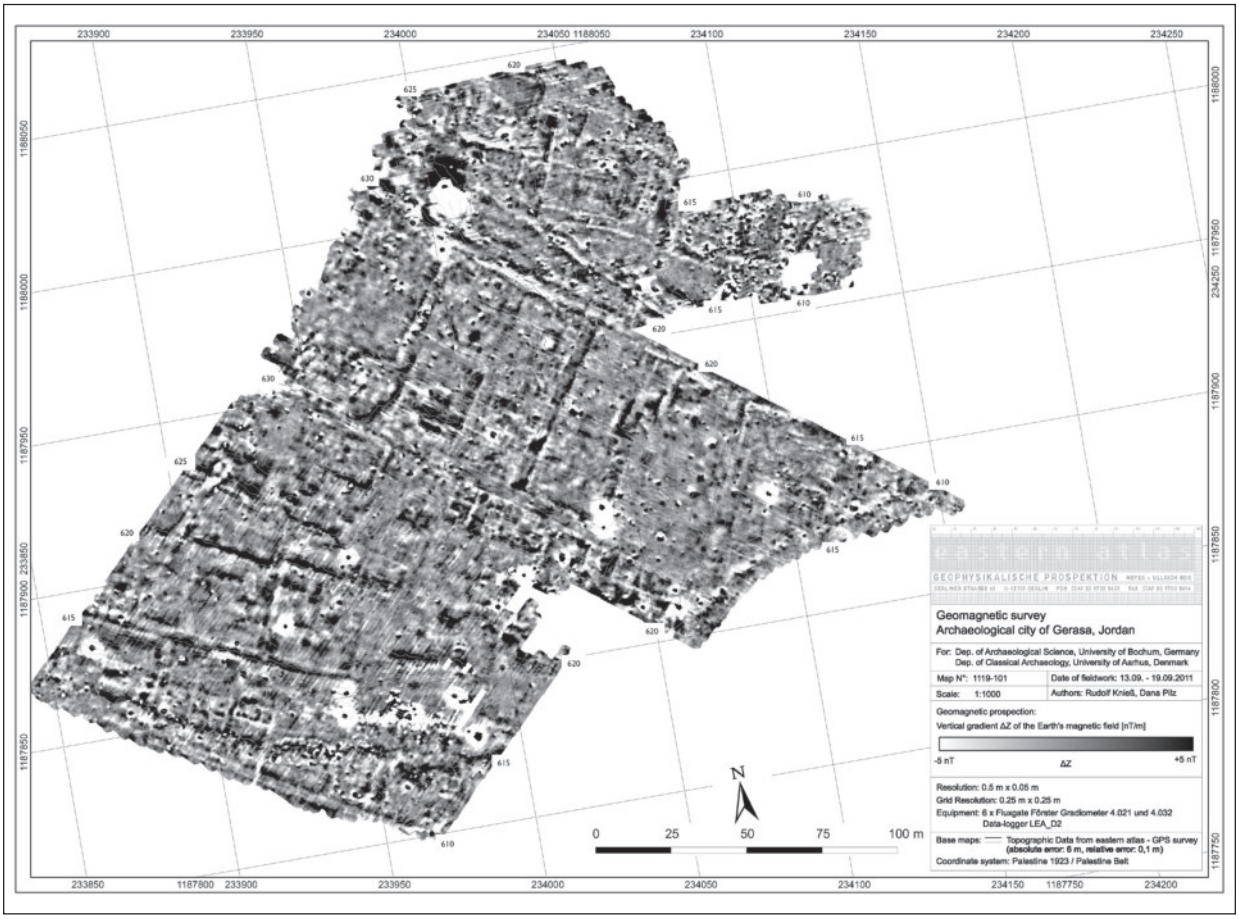
1. Jerash Northwest Quarter 2014 map grey.

(Trenches I and M)[5]. Further investigation of the 'south street' suggests the most likely date for planning and implementing it was the Byzantine period (Trench L). This fits with a newly excavated street in Trench J, which was first laid out either in the late Roman period or the Byzantine/Umayyad periods. This street, the so-called 'central street', runs east west and follows the natural terrain, as does 'south street'; it was already visible in the magnetogramme of the geophysical survey undertaken in 2011 **(Fig. 2)**. Although questions remain open about some aspects of the absolute chronology, the 2014 campaign offered important information on the origins of the large-scale urban development of the Northwest Quarter.

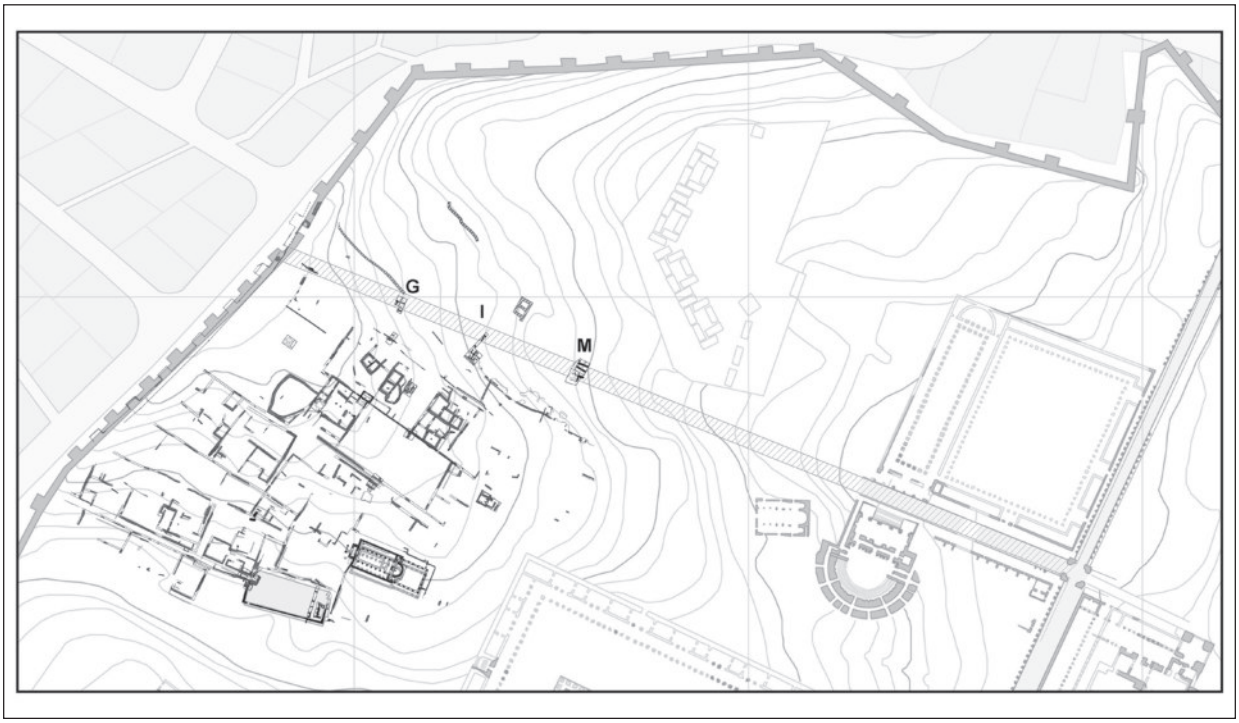
- Trenches I and M were dug to further investigate the slope on the northern slope, and to finally clarify the possible course of the North Decumanus. As a result, the course of the North Decumanus is now clear from the Tetrapylon to the North Theatre, has been mapped, and a projection generated. Trench I was located in this line of projection (**Fig. 3)**.
- Trench J was located on the southern border of the hill top to clarify broad north-south running anomalies which were visible in the magnetogramme from 2011, and to investigate the building patterns opposite the Byzantine to Early Islamic settlement system excavated during the 2013 campaign, north of the large courtyard[6].
- Exploration of the so-called "east terrace" commenced with trench K. In this area, which has dense scatters of collapse, only a few walls are traceable on the surface; however, a large quantity of architectural elements are visible, being dispersed across the area.

5. See Clark, Bowsher and Stewart 1986, 206–207. Lepaon 2011, 409–-20 for the previous most up-to-date city plan of Jarash.

6. See Kalaitzoglou *et al.* 2012 for the geophysical results.



2. Jerash NW-quarter magnetogram 2011.



3. Jerash N-decumanus projection 2014.

- Trench L was located on the southern slope of the hill, where the so-called 'south street' meets the large rectangular cistern. The aim of this trench was to investigate the relationship between the large Roman period water reservoir and the residential area to the west of it. A pottery survey was completed in this area, (c. 5436 m^2 in total), between Trench L and the debris of the city walls.

Approximately 374 m^2 were excavated in total, and an underground cave (app. 25 m^2), was examined in Trench J. It was our objective to completely understand the chronological development by reaching bedrock or virgin soil without removing any ancient built structures which were encountered in the trenches. This was possible for the most part, and only in rare cases were younger structures removed, usually because of safety issues. All trenches have been backfilled, except the cave access in Trench J; this was securely covered with the assistance of the DoA office in Jarash, which means it can be reopened for further investigation during the 2015 campaign. Relative chronologies were reconstructed for each trench and correlated with radiocarbon samples taken in-situ; however, in several cases a refined, absolute dating of the features will be available only after additional ceramic and finds studies. (For a preliminary report on the finds, cf. Lichtenberger, Raja and Sørensen in this volume[7].

As in the previous campaigns, a considerable number of finds are related to the Hellenistic and Roman periods; the cave complex in Trench J in particular, and some of its deliberate fill provide evidence of considerable building activity on the hill during the Roman to Late Roman periods. However, most of the excavation finds indicate a Byzantine to Early Islamic date[8]; of these, an undisturbed destruction layer from the end of the Umayyad period in Trench K is extremely important. Only a few finds from the Ayyubid-Mamluk period have been discovered so far, and these periods were almost completely absent on the southern hill slope where the ceramic survey was conducted.

South Slope Survey

An architectural and geodetic field survey was conducted over the whole Northwest Quarter in 2011[9], and it was decided to conduct a surface pottery survey of an area on the south slope in 2014. This area, which covers an area of about 5436 m^2 between Trench L and the debris of the city walls **(Fig. 1)** is densely strewn with collapse, and structures are visible on the surface. It was divided into three parallel strips, with 42 transects; representative numbers of surface finds were collected. Although the finds analysis is still incomplete, two preliminary results are worth mentioning: (1) finds from the Middle Islamic periods are very rare. This confirms the assumption that Ayyubid-Mamluk settlement and activities were limited to the vicinity of the hamlet on top of the Northwest Quarter. (2) An increasing number of Roman sherds were found the closer we got to the city walls. Although this concentration of Roman surface finds most likely results from a bulldozer lane leading up the hill, it is obvious that the original backfill from the demolished retaining walls on the terraces must have contained remarkable amounts of Roman or even older pottery, attesting to Roman period activities in this area.

Trench E (Sector A)

To gain additional material for radiocarbon dating of the water-supply system, the northwestern part of Sector A was reopened, and samples were taken from the mortar surrounding the clay water pipe (Ev. 53)[10].Although no charcoal sufficiently large enough for ^{14}C dating was found in the mortar, the samples can be used for AMS C^{14} analysis[11].

Trench H (Sector D)

An additional sounding (Sector D), about 1.0 by 1.5 m, was excavated directly west of Trench H on the northern hill edge[12]. This sounding was also intended to extract mortar samples from the fittings around the clay water pipe (Ev. 4)[13] and the lining of the rectangular water channel (Ev. 7)[14] parallel to the escarpment, which can also

7. All catalogue numbers (cat. no.) mentioned in this report refer to the preliminary registration report by Lichtenberger, Raja and Sørensen in this volume.
8. See Avni 2014 for this period.
9. Lichtenberger and Raja 2012.
10. See the preliminary field report Kalaitzoglou, Lichtenberger and Raja 2017 for the results of Trench E.
11. Cf. Lichtenberger, Lindroos, Raja and Heinemeier 2015.
12. See the preliminary field report Kalaitzoglou, Lichtenberger and Raja 2017 for the results of trench H.
13. The samples are J14-H-SM-1 and J14-H-SM-2.
14. The samples are J14-H-SM-3 to J14-H-SM-5.

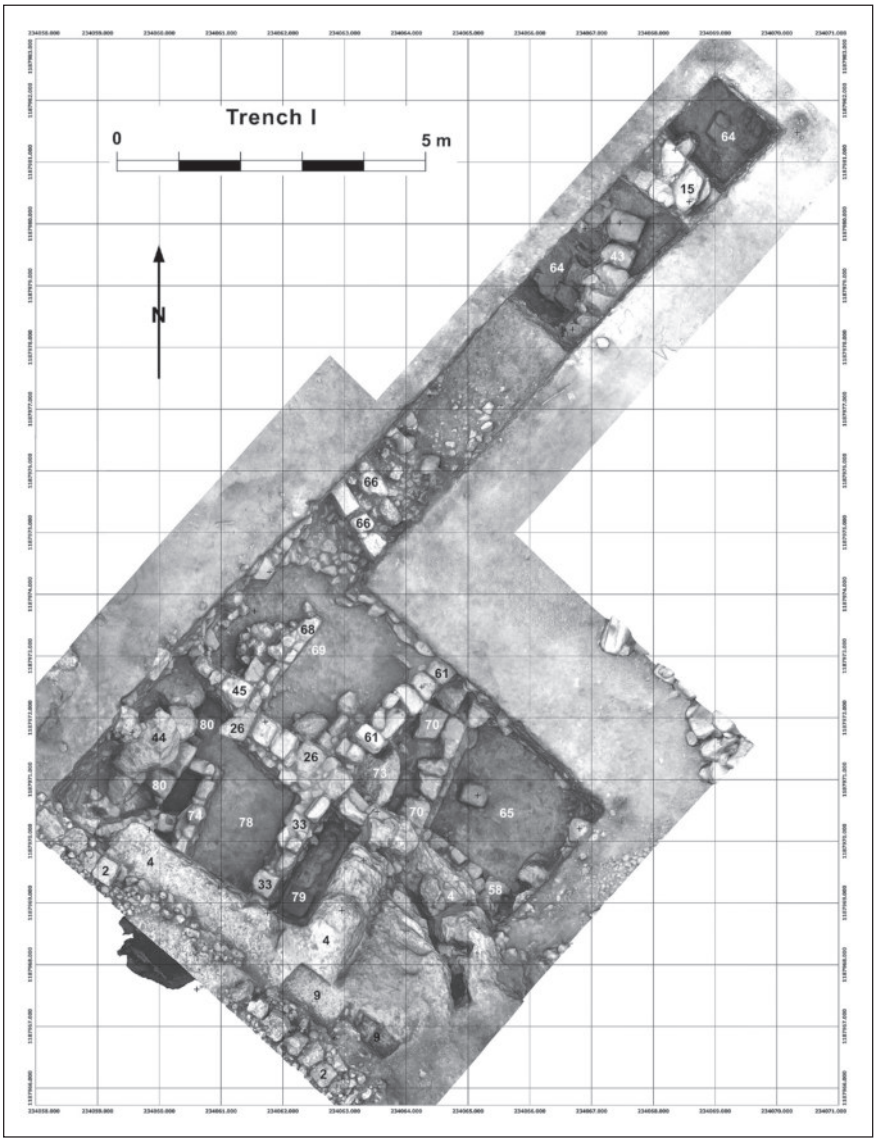
be radiocarbon dated by AMS. The newly observed stratigraphic features attest that the clay water pipe (Ev. 4) was situated on a mortar surface after the water channel (Ev. 7) was built.

Trench I

Trench I is situated in the northern part of the Northwest Quarter **(Fig. 1)**. It was opened to explore the area in front of an L-shaped rock cut on the northern hill edge, where a cave opening was already visible before excavation commenced[15]. The trench (Sectors A–D) measured 6.8 x 7.0 m (46.6 m^2) on the north side of the rock cliff.

An additional sounding trench 10 m in length and 1.45 m in width (Sectors E–H) was opened between Sector A and the bedrock outcrops to the north, in order to explore the original surface of the terrain, and to investigate whether the North Decumanus had originally extended into this area. As noted above, no trace of the North Decumanus was found, thus leading to the conclusion that this street did not exist in this area in antiquity. Further investigation into the possible course of the North Decumanus was undertaken in Trench M further to the east; once again, no proof of the existence of such a street was encountered.

A total of 60.4 m^2 was explored in Trench I **(Fig. 4)**. Whereas bedrock was reached in Sec-



4. J14 Trench I Planum 1-100.

15. Line Egelund Nielsen was trench supervisor.

tors G and H of the sounding trench, the lowest level reached in front of the rock cliff (Sector B) was 614.90 m asl.; 2.0 to 2.5 meters above the level of the bedrock reached in the northern sectors. This means that older structures possibly underlie the deepest habitation level unearthed in the southern part of Trench I. Above this level, the remains of a Byzantine-Umayyad building with at least two rooms were found, which had been built against the rock. In the higher levels on top of these remains, other building structures were uncovered, stemming from distinct (probably early Islamic) phases situated in front of the small natural cave. One of the last phases was a small-scale Ayyubid-Mamluk reoccupation, which seems to have occurred after a long settlement gap.

Building Phase 1 (Roman?)

The oldest anthropogenic modifications found in the trench are the L-shaped cuts into the bedrock, leveling of the top of the rock edge, and rectangular depressions (Ev. 9), which were probably used as block beddings, as well as step-like cuts on the northern flank of the rock edge. Similar cuts are also visible to the east along the rock cliff, indicating that the edge had been prepared to support a larger building structure, such as a wall. These modifications to the rock precede the building structures unearthed, particularly in Trench I. It is not possible to identify a definitive date for Building Phase 1, but it probably antedates the Byzantine period, which is when the constructions in front of the cave were erected during Building Phase 2.

Building Phase 2 (Byzantine/Umayyad)

This building phase is characterized by the construction of a rectangular room, partly rock-cut in front of the cave (the west room) and another, smaller room (the east room) on a lower level. The east room is situated in the southern sectors (A–D), and has a mortar floor (Ev. 65) set from the north against the rock cliff. Only the southwest corner of this room could be excavated within the limits of the trench, preserved to a height of almost 1 m. The corner is formed by a western wall (Ev. 70) which was constructed from the east against a bedrock spur (Ev. 73) which protruded northwards; the wall then turns in western direction. The southern wall (Ev. 58) was built using mortar, on a slightly higher level against the southern bedrock (Ev. 4), and runs against the western wall from the east.

A second room (the so-called west room) is located to the west, adjacent to the east room. The northern wall of this room is missing, but the rock cut (Ev. 4) and the wall (Ev. 70 and probably Ev. 80) served as retaining walls. A row of sloping beam holes in the eastern rock wall (Ev. 4) of the L-shaped cut indicates that a roof had been constructed between the rock wall and another wall parallel to it. As the lowest beam hole is too low to be connected with any of the later building structures, it probably belongs to the roof of a second room situated on a higher level in the L-shaped rock depression[16]. The most probable candidate for the western wall of this room is Ev. 80, which was found underneath the later structures and has a course parallel to the rock wall. A short wall section (Ev. 79) found in front of the rock wall could belong either to this phase or an intermediate phase.

A small natural cave (1.55 by 1.25 m) is situated in the center of the southern rock wall of this room; it was only slightly worked inside, but the base of the entrance was cut horizontally as a threshold. As the mortar floor (Ev. 78) is at the same level as the base of the cave opening, and runs against the wall (Ev. 80) and because all other walls were built on or above this floor, it is very likely that it belongs to this building phase. This also seems to be true for the remains of a mortar floor foundation (Ev. 69) which were found under the later wall (Ev. 68).

The building plan of this phase can thus be described as follows: It consisted of an east room with mortar floor on the lower level and a west room. The wall (Ev. 70) was probably not only the western wall of the east room, but also served as a wall prolongation of the eastern side of the west room. Although a staircase was not found in the excavated area, it is probable that a connection between the rooms existed on

16. The difference of at least 2.07 meters between the top of the bedrock spur (Ev. 73) and the lowest beam hole seems to be sufficient for a ceiling height.

the northern side. As the finds analysis is still in progress, we are relying on radiocarbon samples to date this building phase. The combination of a small charcoal sample from inside the wall (Ev. 70) which suggests a Byzantine date[17], together with the presence of Grey Ware[18] in the fill (Ev. 63) above the floor level of the east room indicates that the structures were built in the Byzantine or Umayyad periods. A thin L-shaped wall (Ev. 74) is probably a later alteration to the plan, because it was built on the floor (Ev. 78) and runs against the southern part of the wall (Ev. 80). Ev. 79 could also belong to an intermediate phase.

Building Phase 3 (Byzantine/Umayyad)

This phase began in the Byzantine or Umayyad period, and is characterized by several minor alterations to the original plan of the buildings, resulting in small architectural units. At some point, the area was abandoned, probably after the earthquake of AD 749, but perhaps earlier. In this and later phases, only the area in front of the small cave was used for diverse small scale building activities. The area of the west room in front of the L-shaped rock depression was filled for the foundation of walls (Ev. 33 and 26), whereas the remains of the older east room were covered completely by debris (Ev. 63 and Ev. 59) and fill layers (Ev. 53). The area in front of the cave was closed by these coarsely built walls, although there was a gap of about half a meter to the eastern rock wall. This gap was closed at its northern end by two stones only. The western limitation of this enclosure could not be detected, but the western end of the east-west running wall (Ev. 26) appears to have been open, forming an entrance on the north side.

The lower part of the cave was filled, and its entrance blocked by a short wall (Ev. 30). North of the wall (Ev. 26), two parallel walls (Ev. 61 and Ev. 68) were built against it on approximately the same level forming another small compartment. Since the structures described were built up to 0.8 m higher level than in the preceding phase, a retaining structure was necessary to level the terrain and to support the large amount of filling material (Ev. 67, Ev. 71 and Ev. 75). This is most likely the function of the double wall (Ev. 66) which was built in front of the rock edge, and appears to be connected with the wall (Ev. 61). The walls of this phase appear to be weak, and lack the stability required to support walls constructed of stone ashlars, and the quantity of soil found between them favors an interpretation that the upper sections were built from mud brick. It is most likely that the compartments were roofed, but since no traces of installations or fireplaces were found, they were perhaps used as stables or shelters in front of the rock cliff. Although the level of the wall foundations were detected, associated floors could not be identified; they probably consisted of a clayish soil which has partly eroded, or been covered by similar soil washed down from the rock cliff. The completed finds analysis will provide insight into which of the fill layers are erosion deposits.

Building Phase 4 (Umayyad/Abbasid?)

The area was abandoned for some time after the previous building phase, and covered by erosion fill and material washed down from the area above the rock edge. The top of some of the walls (Ev. 26 and Ev. 33) remained visible, whereas those on lower levels were covered by an erosion layer (Ev. 40). During this period, parts of the south-western rock edge collapsed, perhaps due to a severe earthquake. A large rock boulder (Ev. 44) was found lying on the erosion deposits in front of the west baulk. It is not clear whether this event can be connected to the earthquake of AD 749, or whether it happened before or after. After this event, a wall like structure (Ev. 45) was built on the erosion fill above the older walls (Ev. 26 and Ev. 68). Only a short stretch of this stone construction, which was badly damaged by erosion and illicit digging, could be unearthed in front of the west baulk. Although its function is not yet clear, it could be determined that it was not in use for long. If the rock collapse resulted from the AD 749 earthquake, the wall could be an Abbasid construction. Further erosion layers

17. Sample no. 21333 (J14-Ib-70-1), Institut for Fysik og Astronomi, Aarhus University (Denmark), ^{14}C age 1499 ± 26 BP, d13C (dual-inlet, extremely small sample) -26.313 ± 0.54, calibration curve IntCal13, 1σ 547–598 AD, 2σ 435–636 AD.

18. The find statistics reveal that the latest dated finds in the fill are Grey Ware. Cf. Lichtenberger, Raja and Sørensen in this volume.

(Ev. 39) filled the area around the wall and the collapsed rock boulder (Ev. 44). The duration of this period of abandonment is indicated by significant quantities of Middle Islamic finds in the next erosion layer (Ev. 35) in front of the cave, which reflect the foundation of the Mamluk hamlet[19] on top of the hill some 20 meters from Trench I.

Building Phase 5 (Ayyubid/Mamluk)

Middle Islamic pottery was found in front of the bedrock which only partly stems from erosion. Most of it relates to an open fireplace formed by three stones, which had more than one layer of ash (Ev. 22 and Ev. 27). It was found in the brownish clay layer (Ev. 29) near the cave opening (Ev. 8), above the remains of the older wall (Ev. 74). East of and at the same level as the fireplace, well preserved examples of so-called Handmade Geometric Painted Ware from the Mamluk period (HMGPW) (cat. no. 22 and cat. no 26) were found. Both features, the fireplace and the pottery, testify to activities in the small area defined by rock walls in the east and south, and the remains of the collapsed rock to the west, between the Late Ayyubid and the Mamluk period. Since no structures were found which could be connected to these activities, it is possible that this site was used as a temporary resting place.

More examples of Middle Islamic pottery were found in the erosion deposits[20] (e.g. cat. no. 21), which sealed the layer (Ev. 29), as well as in the mixed dump of an illicit digging[21] (cat. no. 27, cat. no. 84) conducted in front of the rock cliff and the small cave.

Building Phase 6 (Circassian/modern?)

The next intentional alteration which could be detected was road construction along the top of the rock cliff. The northern limit of the street is a coarsely built wall (Ev. 2) of small and medium sized stones, with a little mortar used as a binding agent. South of this wall, a fill layer of small stones (Ev. 3) covers the bedrock, which is most probably the foundation for the road surface. Above the rock edge and the ancient beddings (Ev. 9), the wall rests on a soil layer (Ev. 6) of post-Middle Islamic date, as cat. no. 85 was found in it. At the western limit of the excavation square, the wall runs over a wide crevice in the bedrock which was filled with erosion deposits. This confirms that the wall is of a more recent age, and that the area in front of the rock cliff was completely covered by slope waste when the street was built. The construction of the street may date to the Circassian resettlement of Jarash in the 19th century, or perhaps later.

Sounding Trench

The excavation results in the sounding trench are very similar to what was observed in Trench G some 45 m to the west in 2013[22]. The soft yellowish bedrock, which was reached about 3.20 m under the surface in Sectors H and G, slopes slightly more in an easterly direction than the modern surface does[23]. The fact that the top of the bedrock in Sector G lies half a meter deeper than in Sector H[24] supports our interpretation that the ancient surface also sloped in a southerly direction, which has formed a kind of ravine in front of the rock cliff. No remains of the North Decumanus or any other ancient road were found, either at bedrock level or higher. If the North Decumanus had extended into this area, it would certainly have passed through Sectors G and H, in the gap between the southern rock cliff and the protruding bedrock north of it (**Fig. 1**).

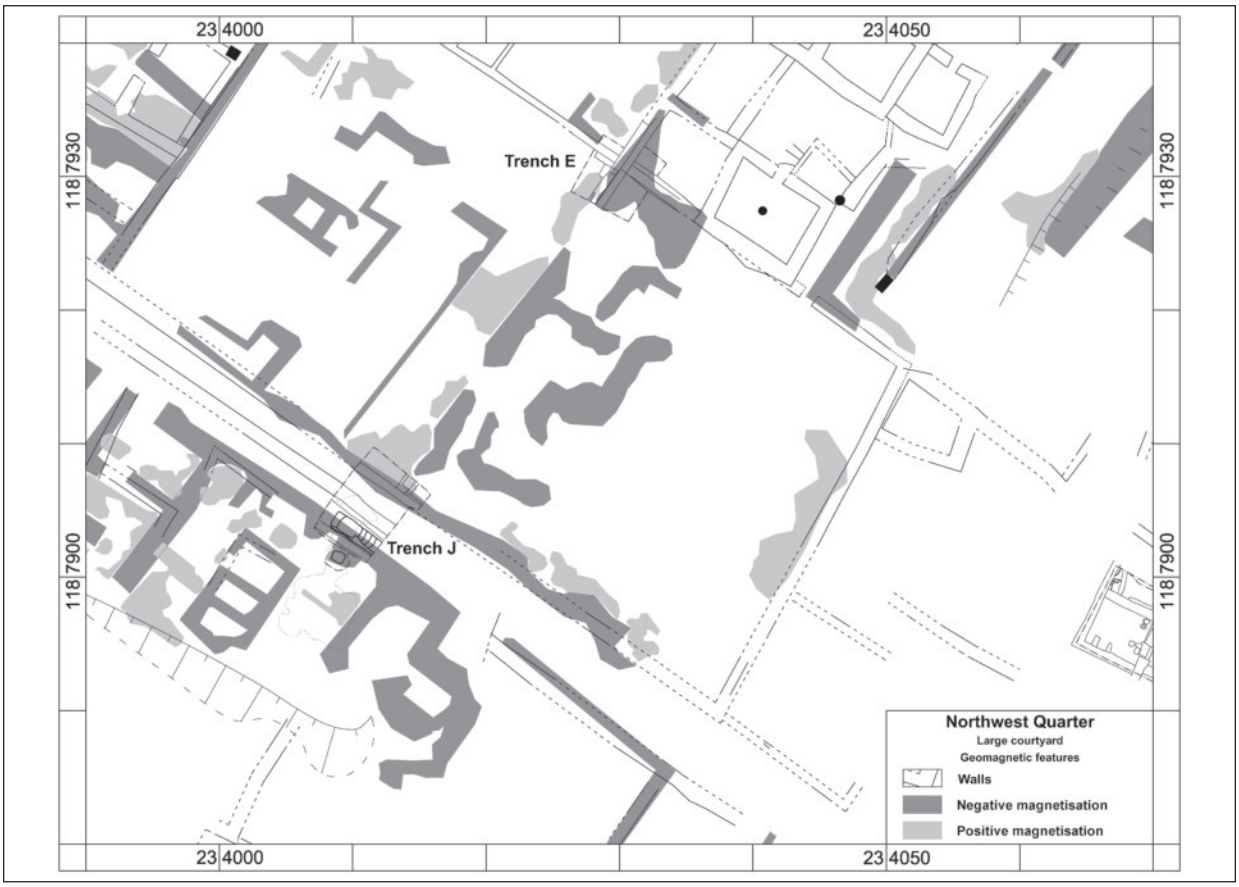
A sequence of erosion deposits were found above the bedrock, as well as two walls at different levels and with different orientations; this stratigraphic sequence resembles the situation in Trench G. In Sector G, the bedrock (Ev. 64) is covered by a layer of yellowish to whitish virgin soil (Ev. 57), whereas in the adjacent Sector H, it is covered by a layer of mixed hard yellowish virgin soil (Ev. 60) which contained pottery[25] and large quantities of cut animal bones, as well as patches of hard clayish soil (Ev. 62). The next intentional feature discovered was a wall-like structure (Ev. 43) in

19. See Raja and Lichtenberger (2016) for more details of this hamlet
20. These are in stratigraphic order (Evidences 25, 38, 21, 20, 18 and 12).
21. These are in stratigraphic order (Evidences 13, 11, 10, 7 and 5).
22. See Kalaitzoglou, Lichtenberger and Raja 2017 for a preliminary report on this trench.
23. While the difference in height between Trenches G and I is about 7 m at surface level, the difference of the bedrock level in both trenches measures only 4.5 to 5.0 m.
24. The top of the bedrock in Sector H is about 613.00 m asl, and about 612.50 m asl in Sector G.
25. See e.g. cat. no. 1.

Sector G, which is roughly north-south oriented but does not continue beyond the later wall (Ev. 15) into Sector H. Its northern end is marked by a hard layer of mortar (Ev. 47) and west of it is a very hard soil layer (Ev. 49). Ashes, charcoal and burned pottery were also found, as well as a curving construction of five stones (Ev. 48)[26] set against the wall. All this rests on a layer of hard whitish-yellowish soil (Ev. 50) and a huge limestone (Ev. 51), above a concentration of stones (Ev. 52), layers of gravel (Ev. 54) and compact soil (Ev. 56 and Ev. 55). Further examination of the finds will help to clarify the function and date of this wall-like structure. Above it, in both Sectors G and H, more or less sterile gravel layers (Ev. 37, Ev. 42 and Ev. 46) were found, which appear to form a horizontal surface[27]. This feature is very similar to the post-Middle Islamic small street or path found in Trench G in 2013[28]. The surface is covered by an erosion layer (Ev. 28) on which a double faced wall (Ev. 15) was built. This wall was found close to the surface, and follows a course parallel to the rock cliff in the south. A 2 m wide area south of the wall was filled with fist size stones (Ev. 16). The debris (Ev. 23) from this wall was found lying to the north on a soil layer (Ev. 19), the upper-side of which marks the walking surface associated with the wall. The structure of a wall with stony backfill is similar to a retaining wall found in Trench G[29].

Trench J

Trench J[30] was opened on the southern side of the large courtyard, on top of the hill and opposite the 2013 Trench E (**Fig. 1 and Fig. 5**). This courtyard is a large plateau which stretches from the so-called Ionic building to the east.



5. NW-Quarter Courtyard magnetic.

26. This structure had to be removed in order to reach bedrock.
27. In Ev. 37, a fragment of imbrex tile (cat. no. 86) was found, while in Ev. 42 a fragment of a Roman terracotta figurine (cat. no. 144) was found.
28. Evidence J13-Gb-11. Compare with Kalaitzoglou, Lichtenberger and Raja 2017.
29. See Kalaitzoglou, Lichtenberger and Raja 2017 for the wall (J13-Gd-6 and J13-Gc-14) and the stone fill (J13-Gd-4) in Trench G.
30. Ulrike Rübesam was trench supervisor.

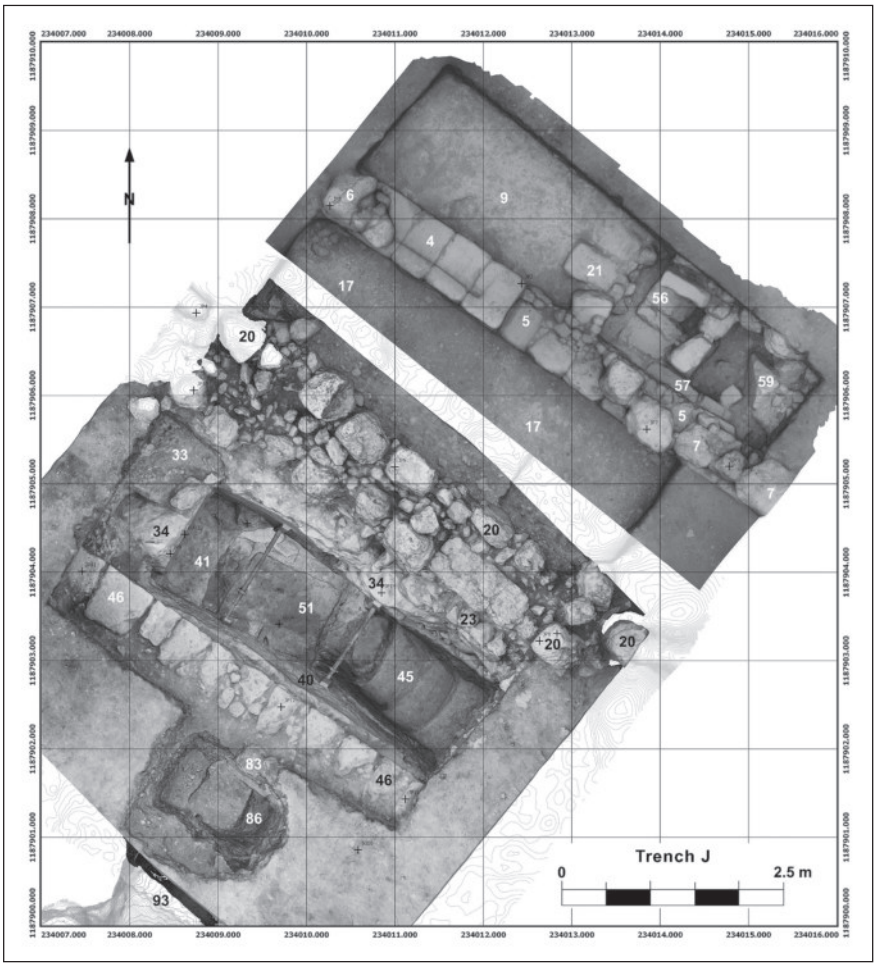
The main reasons for opening the trench were to explore the long east west running walls and the room-like structures detected in the geomagnetic survey, as well as to find the probable continuation of the north-south running clay water pipe found in Trench E in 2013 (**Fig. 5**)[31].

The rectangular trench measuring 4.9 by 7.0 m was later extended by 0.5 m to the south, by 0.7 m in the northeast corner, and by 1.8 m to the east, resulting in an area of 37.65 m^2 (**Fig. 6**). We then encountered a subsurface cave room during the excavation, which added approximately 25.25 m^2 more, resulting in a total area of 62.90 m^2 explored in Trench J (**Fig. 7**).

The main features found in Trench J were building structures arranged to the north and south of the so-called central street, which was built either in the late-Roman or the Byzantine/ Umayyad period. Parts of the structures lining the street were built on deliberate fills in rock-cut shafts, which give access to an older cave room stemming from the Roman period below the surface; this was undisturbed, as it had been closed in the past. Several phases of use and reuse could be observed in this area; however, because some areas could not be excavated down to bedrock, a correlation between the structures and building phases remains hypothetical in some respects. Further exploration scheduled for 2015 may answer some questions.

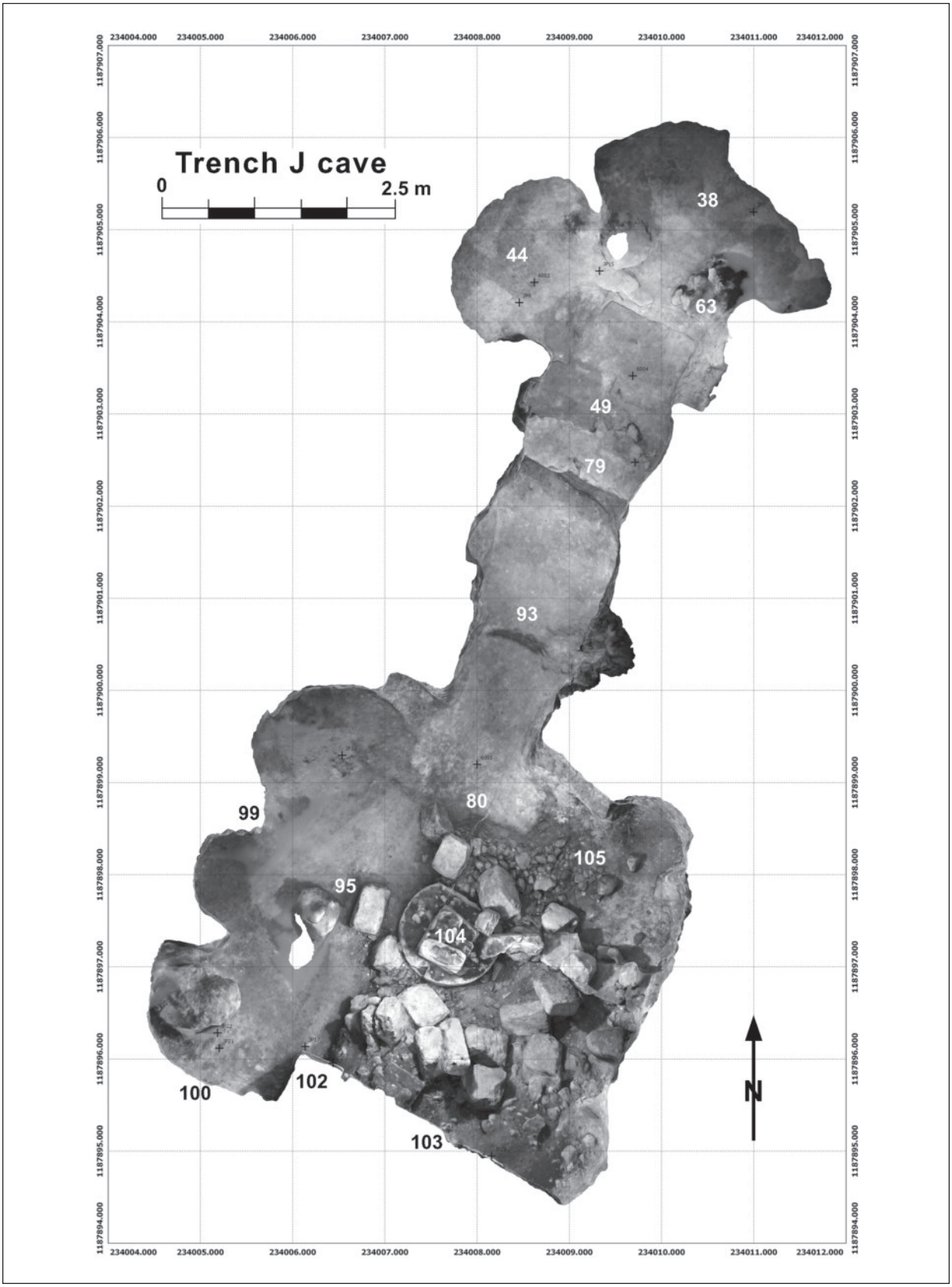
Building Phase 1 (Roman)

As with other areas of the Northwest Quarter, quarry works dated to the Roman period appear to have marked the beginning of human intervention in this area. Since the total excavated area is not large, it is difficult to conclude whether the subterranean cave was accidentally found during quarrying and then subsequently used as a room, or whether it had already been used as a room and access to the cave was from the south, where excavations have not yet taken



6. J14 Trench J Planum 1-75.

31. See Kalaitzoglou, Lichtenberger and Raja 2017 for the preliminary results of Trench E.



7. J14 Trench J cave Planum 1-50.

place. Nonetheless, it is obvious that the concentration of natural cracks, lacunae and small caves north of the cave room must have stopped the quarrying, and may have led to the discovery of the large cave.

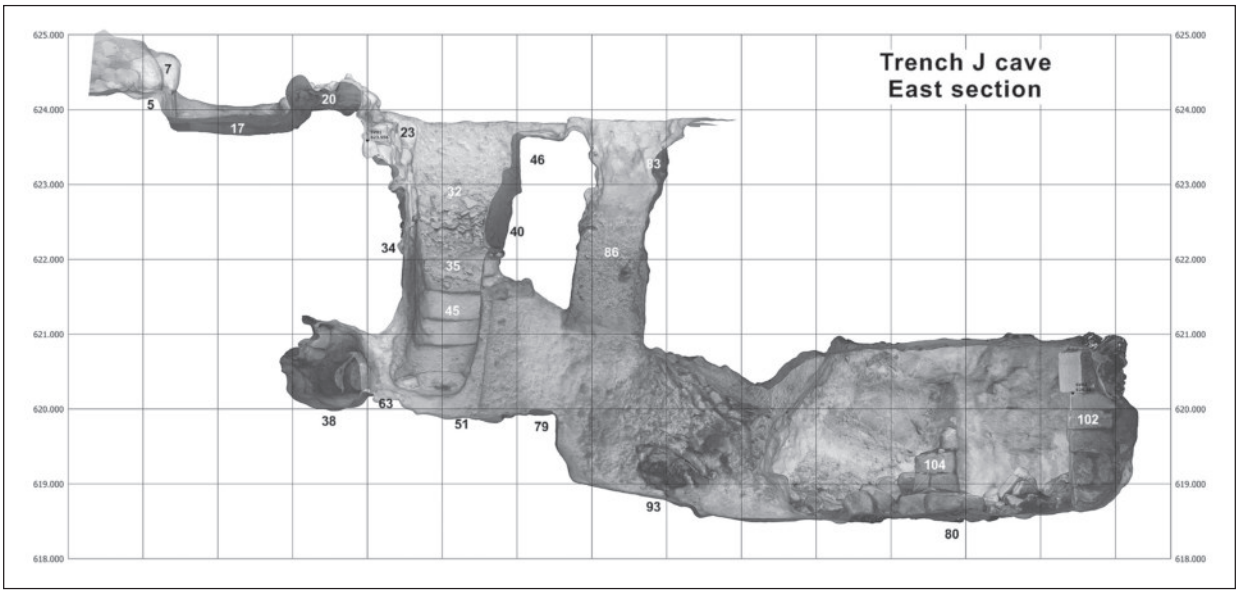
Building Phase 2 (Roman)

A vertical shaft (Ev. 34, 40 and 41) was dug into the limestone rock to determine the layout of the cave. Stairs cut into the rock led down from the east to the west. Although the modern surface is more or less even in this place, and slopes for only 0.6 m from north (624.52 m asl.) to south (623.94 m asl.), the rock surface is more uneven, sloping in an easterly direction for 0.8 m and in a southerly direction for 1.1 m[32]. This indicates that the shaft was most probably cut from east to to west. Due to the fact that the base of the quarry in the western part lies above a small natural cave (Ev. 44) and 1.8 m above the floor of the shaft, work appears to have stopped abruptly here, probably due to a small natural cave (Ev. 44) which was reached, with parts of the rock ceiling (the bottom of the shaft, Ev. 41) collapsing as a result. While the western part of the shaft was left in this condition, two other small caves were found, one on the northern side of the shaft (Ev. 38) and another on the southern side (Ev. 49). The latter was widened to form a tunnel (Ev. 93), which leads in a southerly direction down to the large cave room (Ev. 80; **Fig. 8**).

The staircase (Ev. 45) descends from the east into the shaft, which is only 1.3 m wide. Five steps could be excavated, four of which were cut into the rock, and one has been repaired by stone and mortar. Neither the height nor width of each step is identical, but the average is 0.34 m high and 0.325 m wide; hence, it would probably need four more steps to reach the top of the bedrock (622.87 m asl.) on the eastern baulk of the trench.

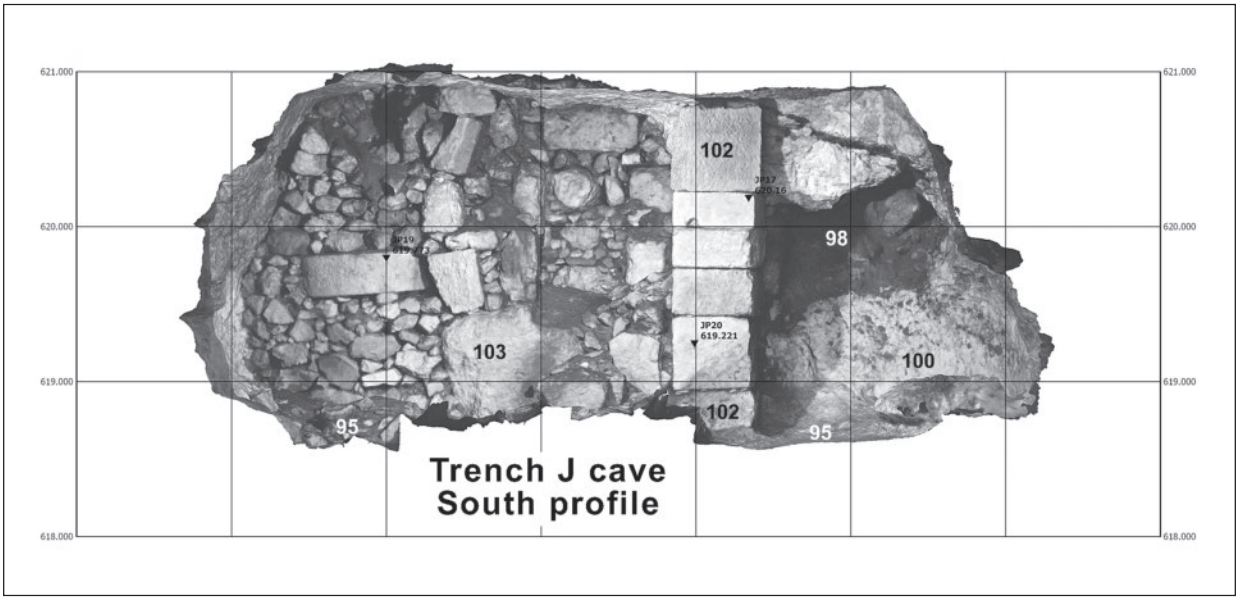
At the bottom of the 3.75 m deep shaft, three small natural caves are situated, none of which are high enough to stand upright. From there a tunnel (Ev. 93) leads about 3.85 m in a southerly direction down into the cave room (Ev. 80), entering it close to its northwestern corner.

The cave room (Ev. 80) is roughly square, and measures about 4.7 m east-west by 5.0 m north-south (**Fig. 7**). Three narrow, roughly dressed, rounded niches of unknown function were dug into the western side of the cave, and another into its northern side. About one third of the south side of the cave is made from natural bedrock (Ev. 100) which has cracks and natural lacunae; this was supported by a short pillar-like wall (Ev. 102; **Fig. 9**). The remaining two thirds were closed by a simple wall (Ev.103) consisting mostly of small to medium sized stones with some larger boulders, one of which may be a large round grinding stone used in a



8. J14 Trench J E-Prof 1-100.

32. Eastern direction: from 623.60 to 622.80 m asl. Southern direction: from 623.60 to 622.50 m asl.



9. J14 Trench J cave S-wall 1-75.

secondary context (spolia). The cave room has a maximum height of 2.43 m[33], which suggests a thickness of only 1.5 m for the rock above the cave. The pillar (Ev. 102) at the western end of the south wall (Ev. 103) is only 2.15 m high, as the cave ceiling curves down towards the south. This could indicate that the southern end of the cave is not far behind the wall. In the center of the south side, there is a small rectangular opening in the wall (Ev. 103). As the opening starts 0.73 m above floor level and measures only 1.13 m in height and 0.57 m in width, it is not clear if it was used as a door. The lower part of the opening was blocked with regularly laid small stones, while the upper 0.38 m was filled with irregularly laid stones and soil. The opening is similar to the resting hole for a press beam[34] but its function cannot be securely ascertained. There is a round limestone torus in the center of the cave, on which a pillar (Ev. 104) stood. The torus is a reused round millstone, similar to the example built into the south wall (Ev. 103). However, at this point, there is no definitive evidence the room was used as a press installation; its function can only be determined by further investigation in the 2015 campaign, which will include cleaning and an exploration of its south wall, which may have provided access to the cave room from the south.

A layer of different sized pieces of charcoal (Ev. 105) found on the undisturbed surface (Ev. 95) above the bedrock (Ev. 91) are the remains of the last phase the cave was in use. This charcoal appears to be connected with another charcoal layer (Ev. 89) found beneath the deliberate fills in the tunnel. In front of the tunnel entrance, the charcoal (Ev. 105) was covered by fill deposits, which suggests it stems from the last utilization phase. The same type of charcoal was covered by the tumbled stones of the central pillar and the south wall in the center of the cave room. This destruction was most probably caused by a later earthquake, which also widened a rock crack in the southwest corner of the cave. Fine sediment (Ev. 96, 97) was washed into the cave through this crack, and found as a large pile on the cave bottom (Ev. 95). The initial date of this building phase is not clear, but it fell out of use in the late 3rd/early 4th century AD, as can be seen from Building Phase 3.

Building phase 3 (Late Roman)

Changes in this phase were mainly with regards to the staircase shaft, the use of which was slightly altered. Previously, the bottom of the staircase shaft appears to have been used as a kitchen, but shortly thereafter after it was completely filled in and levelled; this also terminated all use of the large cave.

During this phase, the natural sediments in

33. The ceiling is 620.89 m asl. and the bottom is 618.45 m asl.
34. See Brun 2004, 14 (types A0 to A4) for a similar beam support built into the wall.

the western and northern caves were most likely removed, to lower the surface levels (Ev. 65)[35]. Since the surface level corresponds with a new mortar floor (Ev. 51) and not with the deeper rock surface, the widening of the small caves is related to this phase (**Fig. 8**). A row of stones (Ev. 79) was laid above an older rock step, and lined with mortar in the entrance to the tunnel (Ev. 49 and 93). This structure lowered the formerly 1.9 m high entrance into the tunnel to only 1.38 m, and formed a steep step (Ev. 79). Rock cuts, stop bars and beam-holes for a wooden framework are visible in the tunnel entrance (Ev. 49). Although this installation is similar to the frame of an ordinary or two-wing door, the presence of a door can be excluded, as the sloping tunnel ceiling means it would be impossible to open it; therefore, it is more likely that the frame served as a wooden screen which closed off the tunnel. The mortar floor (Ev. 51), which was laid in the staircase shaft above the rock, covers the steep step and runs against the older staircase (Ev. 45). An oval tabun (Ev. 52), situated in front of the western cave (Ev. 44) and the tunnel entrance (Ev. 49), is encircled by tile and pot sherds, and integrated into the floor; this would have restricted access to the tunnel. A second, simpler hearth (Ev. 63) was built of two parallel stones on the eastern side of the northern cave opening. The position of these installations suggests that the tunnel and cave room were not in use during this phase. South of the steep step (Ev. 79), a layer of charcoal (Ev. 76 and 89) was found, which covered the bottom of the tunnel and underlies all later wall structures and fills in the tunnel. This charcoal appears to have washed into the cave room (Ev. 105), and could be a result of cleaning the tabun (Ev. 52) and the fire place (Ev. 63) in the staircase shaft.

The features described above lead to the conclusion that the shaft was used in a more basic way during this phase, perhaps as a shelter or kitchen with small side chambers. Although we cannot conclusively determine if the shaft was roofed, it does itself not provide sufficient ventilation for smoke, and rainwater could have flowed into the old cave room.

The staircase shaft was probably filled soon after it was abandoned, because only a thin natural fill of yellowish clay (Ev. 50), either wind-borne or washed in, covered the mortar floor (Ev. 51), the tabun (Ev. 52) and its last charcoal fill (Ev. 53). Radiocarbon dating of the latest charcoal fill in the tabun gives a date between late 2nd and early 4th century AD[36], with a higher probability in the period between AD 212 and 325. The charcoal layer (Ev. 105) on the cave floor, although slightly later, gives a similar date between AD 314 and 404[37]. This can be explained by burning old wood (the old wood effect) in the tabun. According to these dates, the utilization phase of the staircase shaft (Phase 3) can be dated to the early 4th century AD. Not long after the staircase shaft fell out of use, the first blocking wall (Ev. 71) was built into the tunnel entrance, and the shaft (Ev. 30, 40, 45) was deliberately filled with layers of different composition[38]. Large stones were found in the lower layers, with more soil and large quantities of well-preserved Late Roman pottery in the upper layers. These deposits did not completely fill the caves to their ceilings; lacunae were found in the northern cave (Ev. 38), as well as in the western (Ev. 44) and southern (Ev. 49) caves. Although the finds from the fill layers north of the blocking wall (Ev. 71) can be dated primarily to the Late Roman period, the finds south of the same wall are of Byzantine date. The earlier dating of the fill in the staircase shaft is confirmed by a charcoal sample from the lower portion of this fill (Ev. 35), which gives a date between the 3rd century AD and first half of the 4th century AD[39], with a higher probability between AD 226 and AD 358. This corresponds to the dating of the tabun

35. The original surface is still visible in the rear of the caves. The sediment which was removed is very fine, rich in lime and free of organic intrusions.

36. Sample no. 21335 (J14-Jc-54-2), Institut for Fysik og Astronomi, Aarhus University (Denmark), ^{14}C age 1787 ± 29 BP, d13C (dual-inlet, extremely small sample) -25.83 ± 0.7, calibration curve IntCal13, 1σ 174–325 AD, 2σ AD 135–330.

37. Sample no. 21336 (J14-Jc-85-1), Institut for Fysik og Astronomi, Aarhus University (Denmark), C14 age 1701 ± 28 BP, d13C (dual-inlet) -23.71 ± 0.05, calibration curve IntCal13, 1σ 264–390 AD, 2σ AD 254–404.

38. The distinct fill layers, from top to bottom, are: Ev. 32/39, Ev. 35, Ev.43, Ev.47 and Ev. 48 in the staircase shaft. – Ev. 35/60, 47/61, 48/62 in the northern cave. Ev. 38; – Ev. 35/66, Ev. 47/67 and Ev. 48/68 in the western cave. Ev. 44; – Ev. 35/69, Ev. 47/72 and Ev. 48/73 in the southern cave. Ev. 49; – Ev. 82, Ev. 77 and Ev. 81/88 in the vertical shaft. Ev. 86 in the tunnel. Ev. 93 and the cave room Ev.80.

39. Sample no. 21334 (J14-Jd-35-25), Institut for Fysik og Astronomi, Aarhus University (Denmark), C14 age 1753 ± 26 BP, d13C (dual-inlet) -22.8 ± 0.05, calibration curve IntCal13, 1σ 245–330 AD, 2σ AD 226–380.

and the charcoal on the cave floor. The large amount of well-preserved Late Roman pottery provides an indication of Roman habitation in the vicinity of the cave.

Building Phase 4 (Late Roman and/or Byzantine/Umayyad)

This phase is characterized by the construction of a street on top of the refilled staircase shaft and to the north of it (**Fig. 6**). This street has the same orientation as the shaft, and has houses on both the north and south sides. It is not yet possible to determine if the reason for backfilling the shaft and closing the entrance to the underground cave in Building Phase 3 was to construct this street and the houses, or if there was a gap between closing the shaft and constructing the street. Therefore, clarification of the absolute chronology of this phase is subject to further investigation in 2015. This is an important question, as it impacts on the date of commencement for the urban street plan in this area of the Northwest Quarter. Was it constructed during the early 4th century AD, or later during the Byzantine/Umayyad period?

The characteristic features of this phase are leveling of the terrain and construction of buildings at surface level. On the south side, a wall (Ev. 46) with well-dressed stones was built. To the south of it, a vertical shaft (Ev. 86) was cut down to the older tunnel, and probably refilled soon thereafter; the reason for cutting the shaft remains obscure, but may relate to an attempt to drill a cistern. That this shaft antedates the surface buildings is proven by a wall (Ev. 83) which was built on the fill (Ev. 82 and 77) in the shaft, and which runs against an east-west running wall (Ev. 46). In the tunnel behind the older blocking wall (Ev. 71) and under the vertical shaft (Ev. 86) two simple walls (Ev. 75 and 87) of different heights were erected, to limit the amount of material required to refill the shaft[40]. The first additional wall stands on an earlier charcoal layer (Ev. 76) and the second on a fill layer (Ev. 88) above a later charcoal layer (Ev. 89). This charcoal layer (Ev. 89) is obviously later, dated between the 5th century and the first half of the 6th century AD[41]. This Byzantine dating fits well with the fragment of a Jerash lamp which was found within the later blocking wall (Ev. 75). The northern part of the tunnel, which had been closed by the new blocking walls, was then backfilled via the vertical shaft (Ev. 86) with fill layers (Ev. 77 and Ev. 88), which contained large quantities of Byzantine pottery[42].

A wall (Ev. 83) was erected on top of the filled shaft, south of the former staircase shaft, which runs to a wall (Ev. 46). Whereas the northern wall rests on the sloping bedrock, this one (Ev. 83) was built above the fill (Ev. 77) in the vertical shaft (Ev. 86) and a pottery-rich foundation layer (Ev. 82) above the bedrock surface. It could not be established whether Ev. 46 and Ev. 83 were constructed at the same time, or whether Ev. 46 was older, thus antedating the second shaft and wall (Ev. 83).

About 4.65 m north of this wall (Ev. 46) and parallel to it, the southwestern corner of another building was found (**Fig. 6**). It is not yet clear if this building is contemporary with the wall south of it (Ev. 46) or if it belongs to a phase prior to the filling activities. Since the west wall (Ev. 56) and the south wall (Ev. 57) were later covered by an edifice which was also parallel to the southern house, it is obvious that they mark earlier building activity on this spot. Remains of fine wall plaster remains on the western face of the earlier wall (Ev. 56) argues either for another interior room west of the corner or, which is more likely, for preserved exterior wall plaster. The later edifice above the older house corner and the southern building are connected by the mortar surface of the central street (Ev. 17, 33) found between both buildings. Of the later northern building, only the lowest courses of an east west oriented south wall (Ev. 4-7) and a wall (Ev. 21) heading northwards are preserved, as well as a mortar floor (Ev.9) in the northwest corner of the trench. No debris from this building was found, and the stones in the upper course are rounded by bush fires, weathering and ploughing. The south wall (Ev. 4-7) is about 0.70 m thick, and

40. The cave room was almost empty. A wedge shaped pile of filling material (Ev. 77) was found in the tunnel and the entrance of the room, while some stones and pot sherds had rolled further in.

41. Sample no. 21337 (J14-Je-90-2), Institut for Fysik og Astronomi, Aarhus University (Denmark), C14 age 1570 ± 27 BP, d13C (dual-inlet, extremely small sample) -23.66 ± 0.55, calibration curve IntCal13, 1σ AD 430–536, 2σ AD 419–550.

42. See Lichtenberger, Raja and Sørensen in this volume.

built of reused blocks, including a threshold which was broken into five parts, a cut column drum, and a cut ashlar with drafted margins. The inner face of the south wall was built of fist sized stones, and also continues for a short distance along the eastern face of the wall (Ev. 21). This type of masonry was also observed in Trenches D and E, and appears to be typical of the Late Byzantine and Early Islamic periods[43]. As the floor (Ev. 9) runs from the west against a wall (Ev. 21) which runs from the north against the southern house wall (Ev. 4-7), there should have been another room east of this wall (Ev. 21). However, as no floor was found covering the older walls, and the interior of the earlier house corner was filled with stones, it is most likely that this area was excavated and refilled at a later point in time. This approach of cleaning and refilling is very similar to the Mamluk building practice observed in Trenches D and E[44].

The ground plan in this phase has a 4.6 m wide street with a mortar surface, flanked by two parallel houses. The continuation of a wall (Evs. 4-7) can be traced on the surface for a distance of almost 59 m, and a parallel wall, which wall Ev. 46 is part of, could be traced for a distance of 48.5 m (**Fig. 5**). These features not only confirm the enormous width of the street (Ev. 17, 33) but also demonstrate it was one of the main roads on the hill, with 'central street' belonging to an extensive building development on top of the hill.

As noted previously, until a full finds analysis has been completed, it is not possible to determine if the street (Ev. 17, 33), the southern wall (Ev. 46) and the house (Ev. 56 and 57) immediately followed the backfill of the staircase shaft in the early 4th century AD, or if they belong to a Byzantine/Umayyad development of the street grid. In either case, the northern wall (Ev. 4-7) probably belongs to the Byzantine/Umayyad period.

Building Phase 5 (Byzantine/Umayyad)

Only the foundation walls of a very small room, which was built on the northern side of the southern edifice and into the broad street, relate to this phase. Whereas the northern wall (Ev. 23) was built on the sloping northern rock of the staircase shaft, the western wall (Ev. 26) was built into a foundation fill (Ev. 24, 27) above the shaft fill (Ev. 32, 36 and 37). Only a row of stones (Ev. 25) set on the same fill against an east-west running wall (Ev. 46) remains from the southern limitation of this room; this implies that the southern building above the cave was still standing when the new room was erected. Furthermore, as this action narrowed the southern side of the street for about 2 m, it appears that the central street was not as important during this period for traffic in the Northwest Quarter. Similar changing use of public urban spaces can be observed in other places during the Byzantine and Umayyad periods[45].

Building Phase 6 (Ayyubid-Mamluk)

This phase appears to be related to the Ayyubid-Mamluk hamlet on the northern and western side of the large courtyard. After the houses and street had fallen out of use, the area was again leveled, and a simple but almost 1 m wide wall (Ev. 20) was built parallel to the southern limitation of the courtyard. This limitation is formed by the south wall (Ev. 4-7) of the north edifice, of which only one row of stones remains. Both walls seem to have functioned as path delimitations of a small lane leading east-west. The new southern wall (Ev. 20) of this lane was built on a foundation fill (Ev. 30) above the older street surface (Ev. 17, 33) and could be traced for a distance of 27 m, and was almost parallel to the older street's north wall. No debris or destruction layers for the structures of the preceding phases were found, evidencing that the walls (Ev. 21, 46, 56, 57) were demolished close to the surface level. The courtyard fill covering these structures contained chronologically mixed finds, and has traces of ploughing in its upper parts (Ev. 1, 2, 3 and the upper part of Ev. 8). Only the lowest layer (Ev. 8) of the courtyard fill seems to have remained undisturbed, resting on a layer of thin soil (Ev. 14) above the mortar floor (Ev. 9).

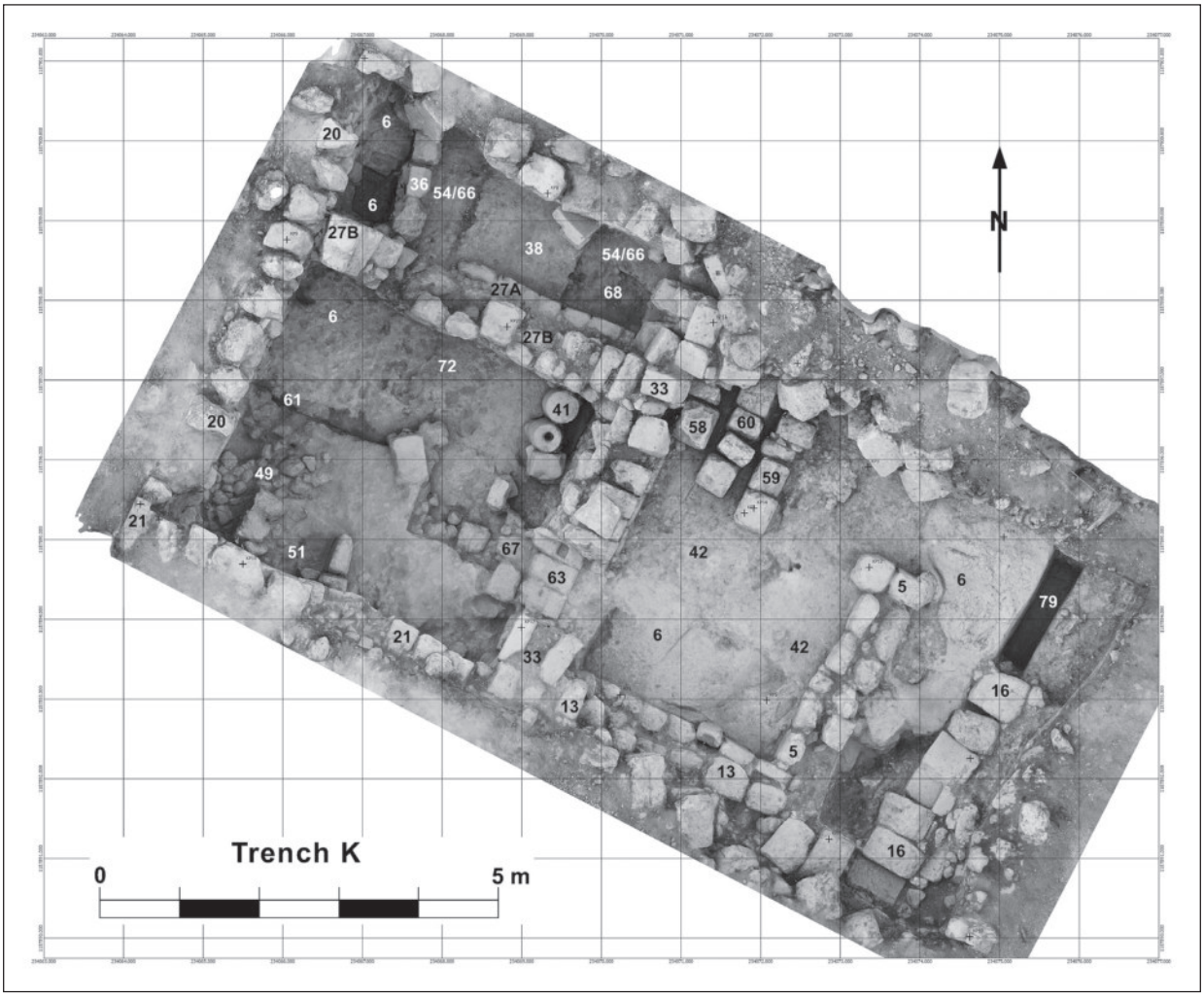
Trench K

43. See the preliminary field report for the 2013 campaign; Kalaitzoglou,Lichtenberger and Raja (2017).
44. See Kalaitzoglou, Lichtenberger and Raja (2017).
45. See e.g. the situation at the South Decumanus in Jarash (Gawlikowski 1986, 111–113). The same can be observed in Scythopolis (Tsafrir and Foerster 1997).

Exploration of the eastern terrace, which lies to the west of and higher than the Artemision, commenced with Trench K[46] (**Fig. 1**). It was opened half way between the large courtyard further to the west and the modern dirt road to the east. Since this terrain is scattered with large stones as well as architectural elements of mostly Roman date, it seemed to have been heavily disturbed during modern times at first. Nevertheless, excavation proved that closed contexts from the Umayyad period were still extant, and that the piles of stones were derived from sudden destruction deposits of large buildings; this destruction was probably due to the earthquake in AD 749. No rebuilding took place in this area at any point in time after the earthquake. Thus, the eastern terrace appears to be predominantly undisturbed by later occupations[47], although the levels close to the surface have been affected by bushfires.

An eastern square (Sectors A-D) was excavated, measuring 6.3 by 5.3 m; this was later extended to the west, resulting in a trench 11.2 m long and 6.5 m wide, with a total area of 65.9 m^2.

The building remains excavated in both parts of Trench K belong to a large edifice orientated parallel to the slope, which continues in both the northern and southern directions (**Fig. 10**). This is evident from the central wall (Ev. 33),



10. J14 Trench K Planum 1-50.

46. Till Flüchter was trench supervisor.

47. Although a hamlet of Ayyubid-Mamluk date is situated only 30-40 meters to the northwest, sherds of that date were very rare and only found close to the surface in Trench K. Some Ayyubid-Mamluk sherds in the upper parts of Ev. 3 are intrusive in most cases, and stem from the top soil (Ev. 1) which fell into the trench when some large boulders (Ev. 2) were removed. Joins between Ev. 1 and Ev. 3 demonstrate that some of these late sherds were moved through the cavities between the stones by animals.

which continues in both directions beyond the trench limits and the western wall (Ev. 20), which continues further north. Although this edifice was built on bedrock, it seems to have had a relatively short occupation history with only minor architectural changes, before it was destroyed by the severe earthquake.

Building Phase 1 (Roman)

The earliest evidence for occupation are traces of a quarry, discovered in the northwest corner of the trench. Although the unearthed part of the bedrock is limited, some irregular step-like cuts provide evidence that medium sized stones were quarried on this spot. Combined with the traces of quarry pits discovered in Trenches A, C, D and E, it is obvious that the surface of the stone quarry extended for a distance of at least 130 m into the east terrace, and thus appears to have covered almost the entire hill top (**Fig. 1**), which has implications for the urban topography of the Roman period.

Building Phase 2 (Umayyad)

The first stage of construction for the house was the excavation of a large rectangular basement room, limited by walls Ev. 20, Ev. 21 and Ev. 33. These walls were built on bedrock, with the east wall (Ev. 33) also built against a step in the bedrock. This room was then divided into a north room and a south room by the east west wall Ev. 27A[48], which does not reach the west wall (Ev. 20), but appears to leave space for a doorway at its western end. The lowest floor discovered is Ev. 72, a thin mortar floor which was laid over the partly leveled bedrock (Ev. 6) and the foundation fill (Ev. 83); the latter was necessary to fill cracks and gaps in the bedrock. Although floor Ev. 72 could only be unearthed in the south room, it must belong to the first plan of the entire building; this is evident by the fact that it runs against the walls of this phase, and also runs in a northerly direction under the foundation of a later wall (Ev. 27B). As the bedrock surface is not even, the remains of quarrying in the northwest corner of the trench must have been visible above the floor level.

An open space was situated to the east of this building, on a 0.5 to 0.7 m higher rock surface which was only roughly levelled (**Fig. 12**). At the eastern end of this open space, a water channel (Ev. 79) was found, oriented north south and almost parallel to the building. The channel was partly cut into the rock and partly built against a (natural?) rock edge. In this first phase, the open space does not seem to have been accessible from the excavated basement rooms, because the door in the east wall was only added later. This suggests that the basement of the edifice must have been accessible through a door further to the north, beyond the limit of the trench.

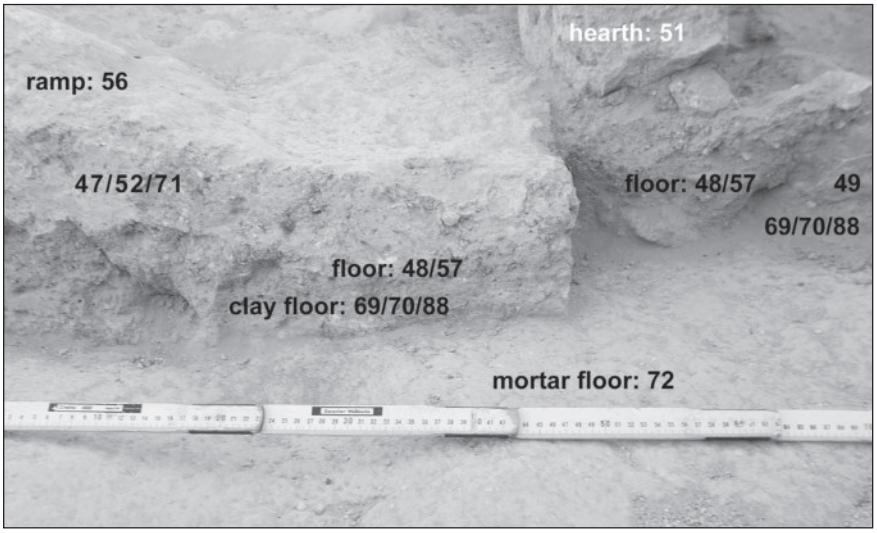
Building Phase 3 (Umayyad)

During this phase, the building was extended to the east, a door was constructed, and another room in the former courtyard erected. The identification of this phase is based on the evidence of a new clay floor in the south room (**Fig. 11**). A corresponding floor was not found in the north room, which was excavated down to bedrock only in its southwestern corner.

There was a simple clay floor in the southern room during this phase (Ev. 69, 70, 87, 88), which was 10 to 15 cm thick, and laid above the earlier floor (Ev. 72), which appears to have been damaged and partly removed, especially the western part. That the new clay floor belongs to the third phase is due to the fact that it runs against the staircase (Ev. 67) and under the subsequent ramp (Ev. 56; Building Phase 4). This verifies that during this phase, to provide access to the open space to the east of the south room, a doorway (Ev. 64) was built into the east wall (Ev. 33) close to the southern limit of the south room. That this door is not an original installation is clear from the open wall cores on both sides. Furthermore, the threshold (Ev. 63) is broken into worn fragments, and is not in line with the wall, but projects into the room; this underlines the secondary character of the door construction. As the wall (Ev. 33) is built against a step in the bedrock, access to the area in the east required a staircase. This staircase (Ev. 67) is comprised of irregular stones, set loosely into a soil and stone foundation against the threshold.

A simple open fire place (Ev. 61) was installed into the floor of the room, near the west wall (Ev. 20). In front of the east wall (Ev. 33),

48. That this wall is older, and not only a bench, is because the later wall (Ev. 27B) rests on a fill above the first floor level.



11. J14 Trench K S-room floors.

two low column drums (Ev. 41) were erected. The southern one was hollowed out and, as a basalt grinder was found in it, used as a crusher. The installations were interpreted as a simple workspace, with an open fire place on the floor, situated in the southern room.

As another door was installed during this phase, which led to the area east of the house, a further room was built in this or an intermediate phase. This east room was constructed in the open space between the central wall (Ev. 33) and the water channel. Its walls (Ev. 5, Ev. 13) were set against the older edifice on a thin foundation fill (Ev. 19 and Ev. 43) over the bedrock, with a door built in the east wall (Ev. 5). The rock and levelled gaps were covered by a mortar floor (Ev. 42). A wall like structure in the east room, which consists of three courses of stone (Ev. 58, Ev. 59, Ev. 60) and laid parallel to the edifice's east wall, possibly belongs to a staircase which led to an upper storey.

Building Phase 4 (Umayyad)

The main feature of this building phase is the division of the north room and the south room into two unconnected rooms by a wall (Ev. 27B), which closed the opening Ev. 27A had provided.

In the north room, the northern wall face of the earlier wall (Ev. 27A) was retained, with a new wall (Ev. 27B) built parallel to it, separating both rooms.

During this phase, the wall Ev. 27B was built on a thick foundation fill, while the floor of the south room was raised by a layer of fist and medium sized stones (Ev. 49) set into a brownish clay (Ev. 48 and 57). This floor completely covered the former fireplace (Ev. 61) in the south room. A simple hearth (Ev. 51) was built on the new floor, formed by two parallel rows of large stone slabs (**Fig. 11**). This hearth was found filled with ashes and sherds from a Grey Ware vessel. Traces of burning were visible on the south wall (Ev. 21). As the floor was now much higher, the former staircase was built over by a simple ramp (Ev. 56) comprised of clay and mortar (Ev. 47, Ev. 52, Ev. 71). The column drum installation (Ev. 41) stayed in place and was integrated into the floor, although a consequence of raising the floor meant the crusher was no longer useable.

The lower clay floor of the north room (Ev. 54, Ev. 66, Ev. 77) was laid on the foundation fill (Ev. 68 and Ev. 76). This floor is partly baked, and shows traces of a fire; hence, it could possibly be concluded that this phase ended due to destruction by fire, at least in the north room.

Building Phase 5 (Umayyad)

Alterations during this phase took place in the north room only. A wall (Ev. 36) was built on the earlier floor (Ev. 54, Ev. 66, Ev. 77) to create a low pedestal in front of the west wall (Ev. 20) which covers the higher bedrock level, which had been left uncovered in the preceding phases. A new thin mortar floor (Ev. 38) was laid over a thin foundation layer (Ev. 55) over the rest of the north room, both of which ran against the new pedestal. Although the floor in the north room was of a higher quality than that

in the south room, traces of wall plaster were found in neither of them.

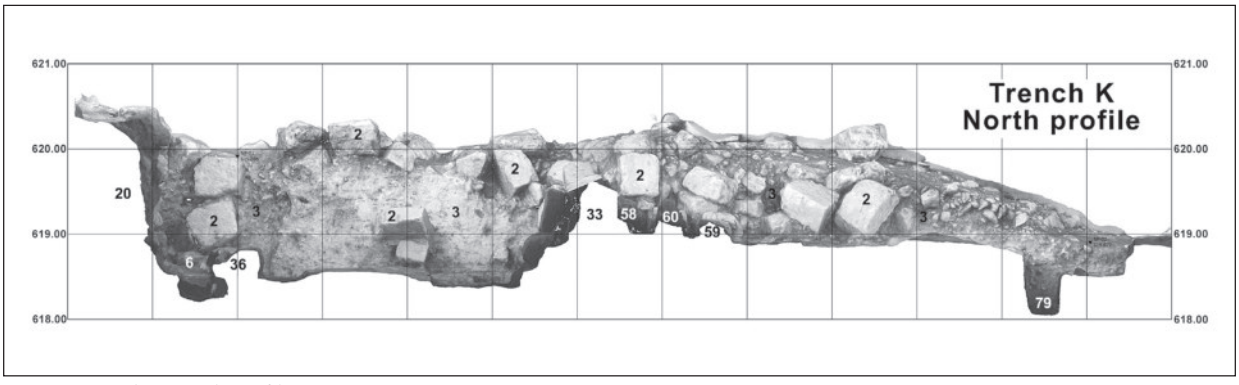
Destruction of the Building (AD 749)

The layout of the complex was as described above when a severe earthquake destroyed the building. The rooms were filled from 1.5 to 2.0 m high with fallen debris (Ev. 2), and a very homogeneous silty clay (Ev. 3; **Fig. 12**); The latter must stem from the pisé (rammed earth) walls of the upper stories[49].

In the south room, a layer of loose brownish soil (Ev. 44) was found under the debris covering the latest floor (Ev. 48, 49, 57) and the simple hearth construction (Ev. 51). As this layer covers the floor and installations of the last occupation phase, it should originate from the ceiling of the basement room, with wood and beams responsible for the brownish coloring and loose consistency. Similar spots of loose brownish soil were recognized in Ev. 3 closer to the walls, and a very similar but much thinner layer of loose brownish soil (Ev. 35) was found in the north room, where it also covered the uppermost floor (Ev. 38).

Architectural fittings and some older objects were found embedded in the clay and stone collapse (Ev. 2 and 3; the later formerly incorporated into the wall cores) as well as a large assemblage of objects which had collapsed from an upper storey. More than thirty individual finds and several find concentrations were documented in the destruction fill. While the majority of finds were concentrated in the northern half of the south room, between 0.5 and 1.0 m above the uppermost floor (Ev. 48, 49, 57), some objects were found above the destroyed walls and other structures[50]. Traces of colored wall plaster (in Ev. 35) and stucco profile fragments (in Ev. 39) prove that the upper rooms were elegantly decorated. A broken amphora (Ev. 32, cat. no. 72) and a Grey Ware vessel (Ev. 40, cat. no. 82) were found in front of the west wall; they had fallen from the first floor. Two globular glass bottles survived the fall undamaged[51]. The most important finds are a coin hoard[52] found in close connection with a metal object, a mortar and pestle (cat. no. 183), a flax or wool comb (cat. no. 97) and a bronze object (cat. no. 103). Nearby, only 0.4 m away, another finds cluster (Ev. 34) contained iron and bronze objects (cat. no. 91-94, 99-102, 106-109, 111, 114, 117-118, 121-123, 126-128, 134-135), as well as a bone object (cat. no. 147), spindle whorls (cat. nos. 154-155), an iron lock (cat. no. 101; probably from a wooden box) and a bronze key (cat. no. 104). Only 0.35 m to the west of the coin hoard, a concentration of golden beads (cat. no. 159) and some carnelian beads (cat. nos. 164, 167), together with a broken glass bottle of the known globular type and a small unguent pot were found (Ev. 39).

The building was never repaired, and the entire area was abandoned until the modern era. No traces of building activities from the Ayyubid-Mamluk period were found, and even agricultural work seems to have been impossible in this stone field.



12. J14 Trench K North-profile 1-100.

49. A very similar yellowish clay was found in Trench D during the 2013 campaign.

50. An iron object (J14-Ke-3-18x) above the eastern wall (Ev. 33). A coin (J14-Ke-3-19x) above the older wall (Ev. 27A). A tridacna shell (J14-Kg-3-15x, B141) and a metal object (J14-Kg-3-20x, M153) above the later wall (Ev. 27B). A large iron scissor fragment (cat. no. 96) was found above the hollowed column drum of Ev. 41.

51. J14-Kg-3-11x (G144), J14-Kh-3-22x (G86).

52. See Lichtenberger and Raja 2015 for the coin hoard.

Dating of the final destruction is based on the finds. The pottery which has been found so far in all the Evidences appears to be from the Umayyad period. Only small fragments of Jerash bowls were found, in most cases from the foundation layers. Glass lamps with beaded stems, typical of the early Islamic period, were found in the debris[53], as well as three globular glass bottles with short tubular necks, which are also typical of the Umayyad period[54]. This evidence suggests occupation and destruction of the house took place in the Umayyad period. More precise dating is provided by the coins. The latest coins in the hoard stem from the time of 'Abd al-Malik (AD 685-705), but further coins found in the collapse were undated post-reform coins from the first half of the 8th century AD. A date of destruction towards the end of the first half of the 8th century AD is also supported by three radiocarbon dates, which additionally verify that the edifice was occupied for only two or three generations before it was destroyed. The sample from the simple fireplace (Ev. 61) in the second building phase assigns a date between AD 690 and AD 767[55]. This is almost identical to the date assigned to the charcoal found in the hearth (Ev. 51) built in Phase Three, as this is assigned a date between AD 674 and AD 764[56]. Furthermore, a sample from the lowest part of the debris (Ev. 44) covering the latter hearth is dated between AD 691 and 770[57], thus only slightly later, and providing evidence that the destruction followed relatively soon thereafter. Since the destruction of the room was devastating and final, it can be assumed that the AD 749 earthquake, which destroyed most of the city, was also responsible for the destruction of this house[58].

To sum up the chronological evidence, it is most probable that the house was built in Byzantine/Umayyad times and was destroyed in AD 749 at the end of the Umayyad period, thus providing a closed Umayyad context with a huge diversity of material culture.

Trench L

Trench L was opened on the south slope, where the south street meets the west side of the large rock-cut cistern (**Fig. 1**)[59]. The south street is 2 to 3.2 m wide, and one of the main communication axes on the southern hillside. The street was flanked by buildings along its 103 m long course, which extended from the city walls in the west to the western limit of the large Roman cistern; the buildings on the south side of the street are at a lower level, due to the sloping terrain. The main objectives were to clarify the chronological relationship between the street and the cistern in relation to the settlement history along the street, and the habitation discovered last year (2013) inside the cistern[60]. With some extensions towards the south and the west, the trench measured 9.10 by 11.70 m, an excavated area of 75.30 m^2; the deepest level reached 4.7 m below the surface in the cistern (**Fig. 13**).

The stratigrapy was complex, with several phases of building activity, as well as repairs and alterations to the street layout. Its most important development is the transition from a water reservoir to an extensive settlement, when the area on the southern hill slope was established. An important result of Trench L is a better understanding of the course of the south street, which ran over the former cistern and turned to the north. Absolute chronological dating of the phases is not yet clear, and needs further analysis. However, the 2014 excavations in Trench F, together with an AMS ^{14}C dating of the mortar in the cistern, was enough to establish the main

53. See Jackson-Tal 2012, 65–67 fig. 3 no. 46 for examples.

54. J14-Kg-3-11x, J14-Kh-3-22x, J14-Kg-39-##. Lester 2003, 158–159 fig. 1 no. 1 (Tiberias stratum V = Umayyad) with further references.

55. Sample no. 21340 (J14-Kh-61-1), Institut for Fysik og Astronomi, Aarhus University (Denmark), ^{14}C age 1268 ± 25 BP, d13C (dual-inlet, olive cores) -22.39 ± 0.05, calibration curve IntCal13, 1σ AD 690–767, 2σ AD 667–775.

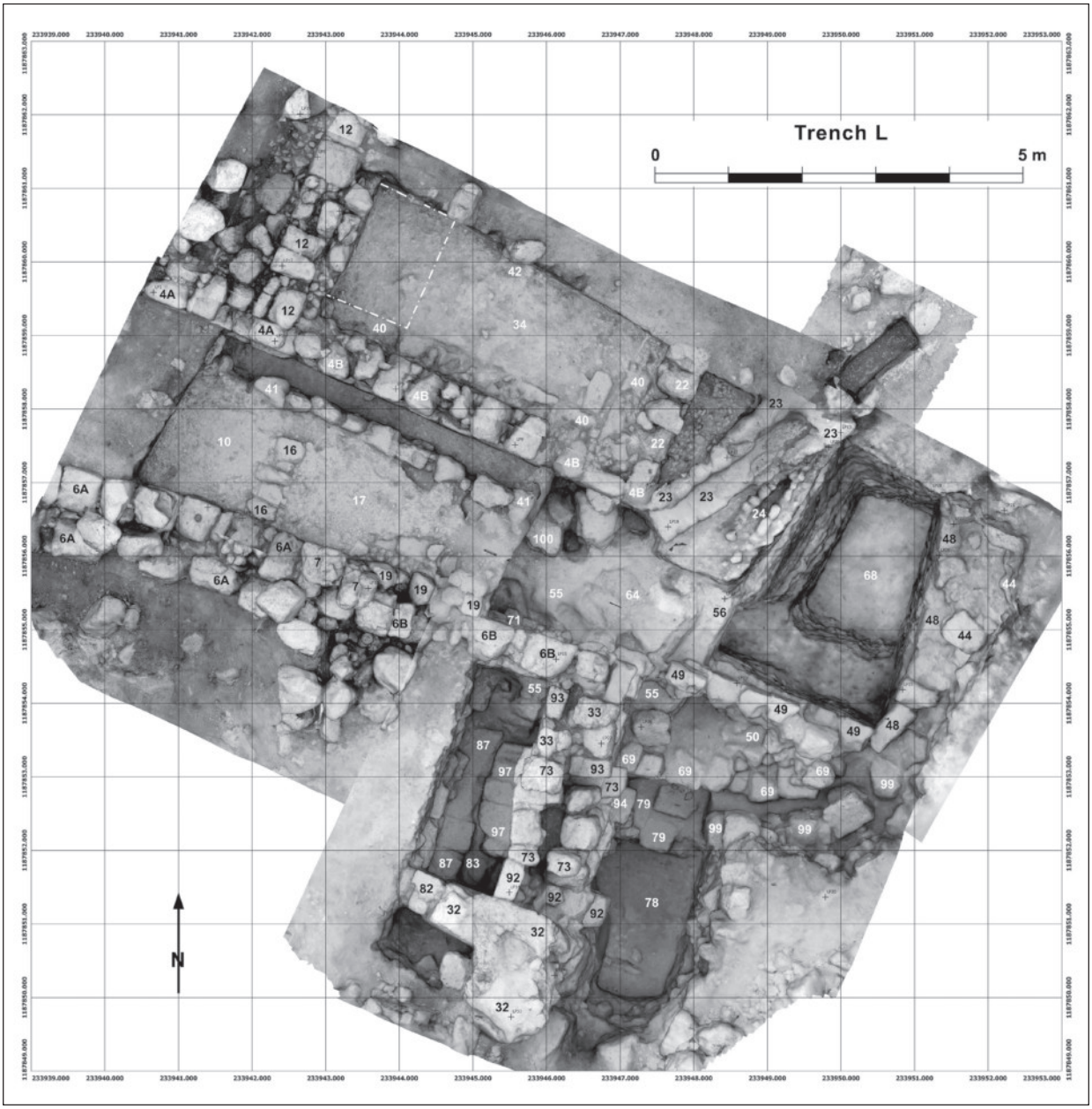
56. Sample no. 21339 (J14-Kh-51-2), Institut for Fysik og Astronomi, Aarhus University (Denmark), ^{14}C age 1294 ± 25 BP, d13C (dual-inlet, wood) -23.30 ± 0.05, calibration curve IntCal13, 1σ AD 674–764, 2σ AD 664–769.

57. Sample no. 21338 (J14-Kg-44-2), Institut for Fysik og Astronomi, Aarhus University (Denmark), ^{14}C age 1259 ± 25 BP, d13C (dual-inlet, wood) -23.26 ± 0.05, calibration curve IntCal13, 1σ AD 691–770, 2σ AD 670–861 (resp. AD 670–778, 90.6%).

58. See e.g. Russel 1985, 47–49 and Marco *et al.* 2003. See Tsafrir and Foerster 1992 for the date. Jarash was situated within the maximum damage zone; see Marco *et al.* 2003, 668 fig. 3 for further information.

59. Anne Ditte Koustrup Høj was trench supervisor.

60. See Kalaitzoglou, Lichtenberger and Raja 2017 for the results of Trench F.



13. J14 Trench L Planum 1-100.

phases of the cistern[61]. It was built during the 2nd/3rd centuries AD, and was in use as a water reservoir until the 5th/6th century AD. After that, the area was transformed into a residential quarter, but this had already been backfilled in the 6th/7th century AD, and the former cistern covered with fill.

Building Phase 1 (Roman)

The oldest structure found was the Roman period cistern. The bedrock (Ev. 55) in most parts was only roughly dressed, with an uneven surface, but two layers of mortar lining were found on both the bottom (Ev. 90 and Ev. 68) and the west wall of the cistern (Ev. 56 and Ev. 57). This situation was also found in the southern extension of the trench (Sector I), where the cut bedrock (Ev. 83) was also lined with two layers of mortar (Ev. 88). The mortar used here is very similar to the oldest one, which was found in the eastern part of the cistern. It came as a surprise that the cistern bottom in the west

61. Lichtenberger, Lindroos, Raja and Heinemeier, 2015, esp. 125; Kalaitzoglou, Lichtenberger and Raja 2017.

is more than 40 cm deeper than the east[62]; this proves that the bottom of the cistern was not even, and that differences in elevation were tolerated[63].

Another new insight was the verification of the originally more or less straight-lined western limit of the cistern. Towards the south, the only section where the bedrock has been worked, the top of the bedrock slopes down for only 0.7 m, between Trench L (614.31 m asl.) and the southwest corner of the cistern (613.80 m asl.). This would lead to a maximum filling level of about 2.8 m at the western end of the cistern. A 3.75 m wide gap found in the western bedrock in southern Sector I does not seems to belong to the original layout of the cistern, because it reaches a level 1.2 m below the assumed filling level and the mortar lining around it was destroyed. Therefore, this opening is later (Building Phase 2), and was originally closed, leaving the question regarding which side the cistern was accessible from unsolved.

Outside the cistern, the bedrock (Ev. 55) remained uneven and protruding rocks (Ev. 100) were not cut; however, gaps and depressions were filled with residual clay (Ev. 66) and mortar (Ev. 64), and partly covered by the first mortar lining (Ev. 56). These preparations stabilized the edge of the cistern, and created an up to 2.4 m wide clean area along its border.

No traces of any further structures, which were contemporary with the Roman cistern, were found. However, it is unlikely that the cistern remained isolated on the southern hill slope, and when more intense building commenced in the area around the cistern still remains to be clarified,. The only building which was founded on bedrock is the so-called north room west of the cistern, belonging to the buildings along the north side of the street. However, since its foundation rises above the edge of the cistern, which therefore must have been covered, it belongs to the next building phase.

Building Phase 2 (Byzantine or Roman and Byzantine)

This phase witnessed the main building activity, and the area plan around the western edge of the cistern was transformed into a habitation area. Even though the building activities took place over time, the results can be summed up as follows. The south street was built in the first instance. The houses on the northern side of the street were built, and in their eastern prolongation, the northwest corner of the cistern was separated from the rest by a multipurpose supporting wall structure, which was built into the cistern and filled up to its edge. This structure can be best explained as serving as a support for the south street's turn to the north on one hand, and flanking a staircase leading down into the cistern on the other. The staircase was accessible from the southern side of the street, where an opening was cut into the rock of the cistern wall, and a staircase with a bent course was built, which leads into the cistern. This installation, with a staircase inside the cistern, implies that the water reservoir was now out of service.

The supporting wall structure formed a base not only for the building structures close to the cistern edge, but also for a street corner leading in a northerly direction, although due to erosion a street surface could not be detected. Hence, the staircase establishes a connection with the cistern, which was already inhabited in this phase. According to our 2013 research in the eastern part of the cistern, habitation began in the 5th/6th century AD[64]. This can also probably be assumed for the construction of the staircase.

This reconstruction of the building history implies that the Roman cistern remained more or less isolated on the hill, with construction of the south street and development of the quarter north and south of it beginning only when it ceased functioning as a water reservoir in the 5th/6th century AD. However, that the street and some of the adjacent buildings (such as the north room) are older, that is, contemporary to a functioning Roman water cistern, cannot be ruled out at this preliminary stage of analysis. If the latter theory is correct, it would indicate that development of this quarter commenced much earlier than the 5th/6th century AD, and that Building Phase 2 would have to be divided into more phases. Nevertheless, as no definitive evidence has been found so far that either the

62. The base of the cistern is 610.94 m asl. in Trench L and 611.30 m asl. in Trench F.

63. This type of irregular cistern wall, with a thick mortar lining, is widespread in the region; see e.g. the large reservoir at Umm al-Jimal (Butler 1913, 159–160, fig. 138).

64. Lichtenberger, Lindroos, Raja and Heinemeier 2015, 125.

street or the adjacent buildings were constructed in the Roman period, we consider this as a single construction phase.

The North Room and the Street

The north room belonged to a larger (mostly unexcavated) building complex extending to the west. The complex was accessible from the south street, and comprised from west to east by a large rectangular room (11.1 by 11.15 m), a smaller L-shaped room (8.85 m x 5.45 m) and the north room built next to it (see the map, **Fig. 1**). The south wall (Ev. 4B) of the so-called north room is 5.35 m, and the east wall (Ev. 22) is at least 4.6 m; only 2.75 m of this wall has so far been excavated. An entrance can be assumed to exist in the unexcavated north wall. Only parts of the east wall (Ev. 12) and the south wall (Ev. 4A) of the L-shaped room have been unearthed, but as the latter binds into the south wall (Ev. 4B) of the north room, it is obvious that both rooms were built in one process.

From a sounding in front of the room's southeast corner, it became apparent that the south wall (Ev. 4B) rests on residual clay (Ev. 66) which cover depressions in the bedrock (Ev. 55), and is set from the north against outcrops of bedrock (Ev. 100). The wall did not come into contact with the cistern mortar (Ev. 64), but from the south, a reddish foundation soil (Ev. 65) was filled 0.4 m high against the wall (Ev. 4B). This layer was covered by a yellowish soil layer with an even surface (Ev. 63), which seems to be the first (temporary?) surface level, some 0.6 m above the cistern. Above this, but only in front of the wall, a soil layer (Ev. 62) with patches of charcoal was found; this implies that the building activities took some time.

The next fill layer (Ev. 61) is the first to run against both the south wall (Ev. 4B) of the north room and the southern retaining wall of the street (Ev. 6B) with its foundation (Ev. 71). It is already a repair of the older retaining wall, Ev. 4A. This later repair (Ev. 47) cut through several earlier street layers at the eastern end of the street, and disturbed the connection between the southern and the northern street side. The next layer (Ev. 60), which is the first mortar layer and thus perhaps the earliest street surface, was also cut by the repair. It rests on a soil layer (Ev. 61) as well as on parts of the upper cistern fill (Ev. 21). The mortar surface could only be investigated in the sounding between the street limits, as to the east and above the cistern, it seems to have been removed by later building activities.

Another sounding undertaken inside the north room confirms that the room and the wall (Ev. 40) which was set against the outer walls (Ev. 4B and Ev. 22), were built on bedrock, and are thus contemporary. The stone foundation (Ev. 84) of the wall (Ev. 40) was founded partly on raw and uneven bedrock (Ev. 85) and partly on a foundation fill (Ev. 76) of contaminated reddish residual clay, which also runs against the wall fundament. Above this, the lower part of a compact filling (Ev. 75) was found inside the room. The upper part (Ev. 35) served as the soil foundation for a mortar floor (Ev. 34) which also covered the inner plinth wall (Ev. 40). A plaster imprint of a round pillar (Ev. 42) was found on this floor in the middle of the room. The dating for this room layout is based on preliminary results. A charcoal sample taken from fill layer Ev. 75 gives a quite early date, between the 1st century BC and the beginning of the 1st century AD[65]. However, a Grey Ware sherd found in the same fill appears to contradict this early date, and favors a later foundation date[66], which seems to be confirmed by another four Grey Ware sherds which were found in the upper part of the fill (Ev. 35), representing the latest finds under the mortar floor. As few further alterations could be detected in the north room, its layout seems to have been the same for a long period of time.

The Supporting Wall Structure and Staircase

Probably related to the construction of the south street and the development of the quarter adjacent to it as a whole, is the construction of a street junction at the eastern end of the south street. A supporting wall structure was built into the cistern, the foundation for the street which

65. Sample no. 21342 (J14-Lg-75-5), Institut for Fysik og Astronomi, Aarhus University (Denmark), ^{14}C age 2035 ± 25 BP, d13C (dual-inlet) -21.84 ± 0.05, calibration curve IntCal13, 1σ 88 BC– AD 4, 2σ 154 BC– AD 47.

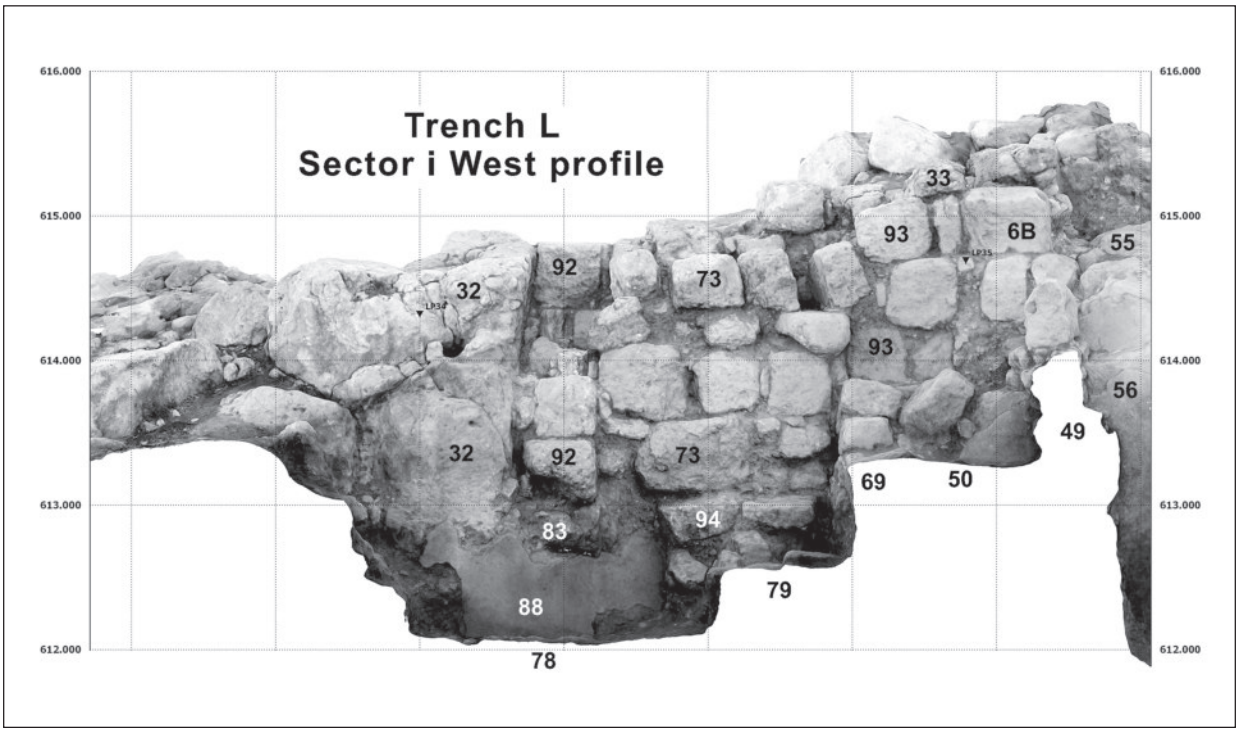
66. This sherd is the latest when compared to the total registration of Evidence 75; the rest of the finds range from Roman to Late Roman.

turned to the north, as well as a staircase leading down into the cistern. The staircase was accessible through a newly constructed opening into the cistern which could be reached from the southern side of the south street.

The supporting wall structure inside the cistern was constructed of dry-built walls, and is preserved to a height of 3.52 m above the cistern bottom; this roughly corresponds with the top of the bedrock to the west. Only the southern part of the structure was excavated; it was at least 3.4 m wide and 5.7 m long, with an internal free space of 2.3 m. It was not possible to clarify whether the structure reaches the northern limit of the cistern, which is 4.4 m away, or if it links to another wall which is located in the eastern part of the cistern, 2.3 m in front of the northern limit.

The eastern wall structure (Ev. 48) rests on a thin reddish soil foundation (Ev. 67), which covers the mortar lining (Ev. 68) on the cistern bottom. The upper part of this wall binds into the northern face of the south wall (Ev. 49), which does not rest on the cistern bottom but rather on the lower part (Ev. 51) of the fill between both walls. This proves that both walls are contemporary, and supports the hypothesis that the building and filling activities took place at the same time. Furthermore, although the cistern bottom south of the structure could not be reached, it is obvious that the southern face of the wall (Ev. 69) for this structure must rest on the cistern bottom, in order to support both the filling and the core fill (Ev. 50) between both wall faces. Some of the stones in the wall (Ev. 49) were set with mortar (Ev. 58) against the mortar lining (Ev. 57) of the western cistern wall. The southern wall face (Ev. 69) was set against the mortar lining of the cistern, and at a higher level against a stone pillar (Ev. 93), which is the northern edge of the doorway in the cistern's western wall (**Fig. 14**). That this doorway is contemporary with the cistern's supporting wall structure is attested by the probable staircase (Ev. 79) built against the wall (Ev. 69), which leads from the doorway around the enclosure.

The doorway was cut 1.82 m deep; its upper part is 3.75 m wide in the western bedrock, whereas the lower part in front of the staircase is only 2.29 m wide. This opening is bordered on both sides by stone pillars (Ev. 93 and Ev. 92), with the northern one set against both the bedrock (Ev. 55) and the southern street retaining wall, and the southern one against the cut rock (Ev. 32). Access to the doorway was



14. J14 Trench Li W-Profile.

organised by more steps (Ev. 97 and Ev. 87), which lead between the southern (Ev. 82) and the northern wall (Ev. 6A?) in a westerly direction, where it was probably possible to reach the street level. It was not possible to excavate this important area, where the stairway and the street met; however, it appears to be covered by the later south wall of the street (Ev. 6B). What is clear is that this opening does not belong to the phase in which the cistern served as a water reservoir, because it cuts the mortar lining, and there are no remains of hydraulic mortar on the cut bedrock.

The filling inside the supporting wall structure consisted of several, mostly sterile, gravel layers filled in from the west, attested by their sloping position. The lowest portion (Ev. 51) of the filling (Ev. 21) rests on a thin wall foundation layer (Ev. 67). Closer to the walls, which were built with reddish clay between the stones, the layers were darker in color (Ev. 52). The bright, uppermost part of the filling (Ev. 21) reached a level above the western edge of the cistern, and was also found south of the north room. Above the enclosure, this fill layer was covered by later structures and an erosion layer. There are few finds from the filling which can assist with dating. A charcoal sample (Ev. 72) taken from the fill (Ev. 52) gives a Late Roman date[67], which appears to agree with the date of a rim from a closed vessel (cat. no. 57) found next to it. For now, we have to be satisfied with the conclusion that this structure was erected in the Late Roman period, or later.

Building Phase 3 (Byzantine)

The course of the street junction appears to remain unchanged in this phase, but the street was resurfaced. A deliberate fill layer (Ev. 59) was laid above the older mortar surface (Ev. 60), and on this a horizontal clay layer (Ev. 53) with an even surface was found. These foundation layers were covered by the second street surface (Ev. 43), which consisted of a thick mortar layer. As the backfill (Ev. 19) of the later retaining wall (Ev. 6B) cut through this surface, it is only connected with the south wall (Ev. 4B) of the north room.

Building Phase 4 (Byzantine)

An east-west oriented structure with two parallel stone rows (Ev. 38) of uncertain function was built on top of the street surface (Ev. 43) during this phase[68]. The structure consisted of two rows of fist sized stones, which were only about 25 cm apart; two courses were preserved which were filled with soil (Ev. 45). It appears to have been connected with a very similar north-south oriented structure (Ev. 24) which was found at roughly the same level on the cistern fill east of the north room's southeast corner. Both structures give the impression they served as protection for a drain or water pipe. However, since no traces of mortar or clay pipe have been found, and furthermore the eastern structure (Ev. 38) was filled with soil and covered by a later stone structure in the street (Ev. 41), it is most likely that a lead pipe was originally installed, as such a pipe could have been removed later without trace. A new mortar surface (Ev. 37) was also laid in this phase, south of the probable drain (Ev. 38). As this street surface runs against the later southern wall (Ev. 6B) but not against the northern wall (Ev. 4B), the width of the street was reduced about half a meter in this phase. That wall Ev. 6B was already in existence in this phase also proves that a repair to the street's south wall was necessary, perhaps because the older wall could not withstand the pressure of the street, as only the open stairway into the cistern was located to the south of it.

Building Phase 5 (Byzantine)

Major alterations occurred during this phase, as the staircase providing access to the cistern was closed, its western part was filled, and the course of the street corner was changed. This appears to have been necessary because the southeastern end of the street on the supporting wall structure was unstable, and underwent several repairs.

To achieve the situation described above, the doorway in the western cistern wall was closed by a wall (Ev. 73) and the area west of it was backfilled (Ev. 81 and Ev. 80) to stabilize the street. Following this, a wall (Ev. 19) was prob-

67. Sample no. 21341 (J14-Lb-72-1), Institut for Fysik og Astronomi, Aarhus University (Denmark), ^{14}C age 1775 ± 25 BP, d13C (dual-inlet) -21.19 ± 0.05, calibration curve IntCal13, 1σ AD 230–325, 2σ AD 142–337.

68. This structure was removed during the excavation due to the sounding in front of the north room.

ably constructed at street level, in order to block access to the former stairway into the cistern and to retain the street. The next step was to fill the cistern; a large fragment of mortar lining (Ev. 91) was found in the cistern fill (Ev. 78) outside the wall enclosure. During this action, the upper part of the supporting wall structure was destroyed, because debris (Ev. 99) was found around it in the backfill. On top of the remains of the supporting wall structure, a new wall (Ev. 44)[69] was erected, which had a more diagonal course parallel to a new water channel (Ev. 23) which had been built against the southeast corner of the north room. Both of these structures mark the new direction of the street, which now leads more towards the northeast and the area north of the cistern. The area west of the new eastern retaining wall (Ev. 44) was filled with a layer of stones and soil (Ev. 46). The street surface was not preserved above this foundation deposit, as the area has been badly eroded and covered by an erosion layer (Ev. 39) in which a terracotta figurine from the 2nd century CE was found (cat. no. 139). However, more evidence remains west of the street corner, and a street surface is preserved there.

Above the old street surface (Ev. 37) and the probable drain (Ev. 38), a row of large stones (Ev. 41) was laid, parallel to the south wall (Ev. 4B) of the north room. The space north of it was filled with very compact soil (Ev. 29), which contained large quantities of pottery; amongst other finds, Jerash bowls were also present. Since parts of the stone structure (Ev. 41) rest on this fill, they were built at the same time. South of the stone row, a mortar foundation (Ev. 18) was applied and then covered by a new mortar surface (Ev. 10 and Ev. 17), which connected to the stone row.

The stone row could be traced for a distance of 4.9 m along the north side of the street; however, its function is not yet fully understood. It should be associated with the water channel (Ev. 23) constructed against the east side of the north room, and, although the building techniques are different and no traces of mortar or a raceway were found on top of the stone row (Ev. 41), both structures are at the same level and could have been connected, even though a direct spatial connection could not be established. The channel (Ev. 23) was constructed in a U-shape of rectangular stones, with a thick mortar lining on the inside and covered by stone slabs, thus forming the western side of the new street course. The triangular space between the channel and the east wall (Ev. 22) of the north room was filled with layers of compact soil (Ev. 36, Ev. 26). Another probable channel (Ev. 16) was found integrated into the street surface, leading southwards from a right angle with the channel (Ev. 41).

Whether the new west wall (Ev. 31) inside the north room, which was set on the mortar floor (Ev. 34) against the old west wall (Ev. 12), was constructed in this or in one of the earlier phases is still unknown, as a direct connection with the street is lacking.

Building Phase 6 (Byzantine/Umayyad)

The housing complex declines during this phase, and only poor quality, minor additions can be observed. It is obvious that the north room lost its residential function during this phase, and was perhaps used as a terrace or platform. Its interior was covered by a foundation fill (Ev. 14/30) on which a deposit of small to medium sized stones (Ev. 11) was laid. Above this, a row of large worked stones was set against the wall (Ev. 4B). The latest structures were found underneath tumbled stones (Ev. 13) mixed with top soil (Ev. 2).

In the street, a dry built short rubble wall (Ev. 7) was set from the north against the former south wall (Ev. 6B). The channel like structure (Ev. 41) and the fill north of it (Ev. 29) were covered by a row of large stones (Ev. 5), which appear to stem from the nearby wall (Ev. 4B). The street area between these structures was covered by a soil layer (Ev. 9), which perhaps constituted the new surface level. This last surface was covered by debris (Ev. 3) and top soil (Ev. 2). As there are no Middle Islamic or later finds, the settlement around the south street must have come to an end before then, perhaps shortly after the devastating earthquake of AD 749.

Trench M

Trench M was a partial re-excavation of a trench excavated in 1983 by J. Schaefer[70], lo-

69. Parts of this wall had to be removed for safety issues.

70. Clark and Bowsher 1986, 343–345 with fig. 1–4 and pl. 1–2 (area E trench I).

cated on the possible course of the North Decumanus. A line of two columns was visible in the trench. The main reasons for reopening this trench were to explore the original rock surface on the northeast slope, and to provide additional information to the results gained from Trenches G and I. This area is particularly important with regards to understanding the possible course of the North Decumanus, and determining how far it extended to the west; in this respect, it is related to the research undertaken in Trench I. Results from this campaign determined that the North Decumanus never reached this area. Additionally, a colonnaded architectural façade from the Byzantine/Umayyad period was uncovered, which was interpreted as the revetment for a terrace.

The work in this area was necessary because the results presented in the short report from the 1983 excavation did not conclusively answer the question of the North Decumanus[71]. In order to do so, the eroded excavation dump was removed and new profiles cut to clarify the main stratigraphic features. In order to clear some undisturbed layers the west, north and east profiles were extended for about half a meter; this resulted in a 5.9 x 6.6 m trench, with a total area of 37.5 m^2 (**Fig. 15**). Removal of the excavation dump determined that the original excavation reached bedrock in the middle of the trench only, and that the water channel (Ev. 13) which crosses the trench from west to east had been misinterpreted as an unusual foundation wall by the first excavators[72].

North of the east west oriented wall (Ev. 1; formerly Locus 016) the lowest level reached was marked by a layer comprised of plastic bags. Underneath this, undisturbed foundation layers (Ev. 10, 12) were found above the bedrock (Ev. 15). Although the bases of the western and middle columns had been reached, the former excavators had not gone deeper, in order to unearth the bedrock in this area[73]; rather, excavation ceased about 20 cm above the western stylobate and its associated foundation structures. The northeast corner of the trench had also not been excavated by the earlier excavation. A third column base (Ev. 19) was found here underneath a soil ramp, which had been used during the 1983 excavation to remove the excavation dump[74].

The 1983 excavation report does not provide a clear picture for the function of individual building structures which had been found, nor how they related to the buildings in the southern part of the trench, which are at a higher level. In contrast, the research undertaken in 2014 indicates there are three distinct construction and utilization phases.

Building phase 1 (Roman/Byzantine?)

The oldest traces of human activity are a roughly levelled rock surface south of wall Ev. 1, a shallow rock-cut trench in Ev. 15, which crosses the excavation square from west to east, and a well levelled rock surface north of the rock trench. As none of the foundations, either for the wall (Ev. 1) or for the column stylobates (Ev. 4, 21, 22) were set on or against the rock cuts, it is obvious that the built architecture and the rock cuts did not belong together.

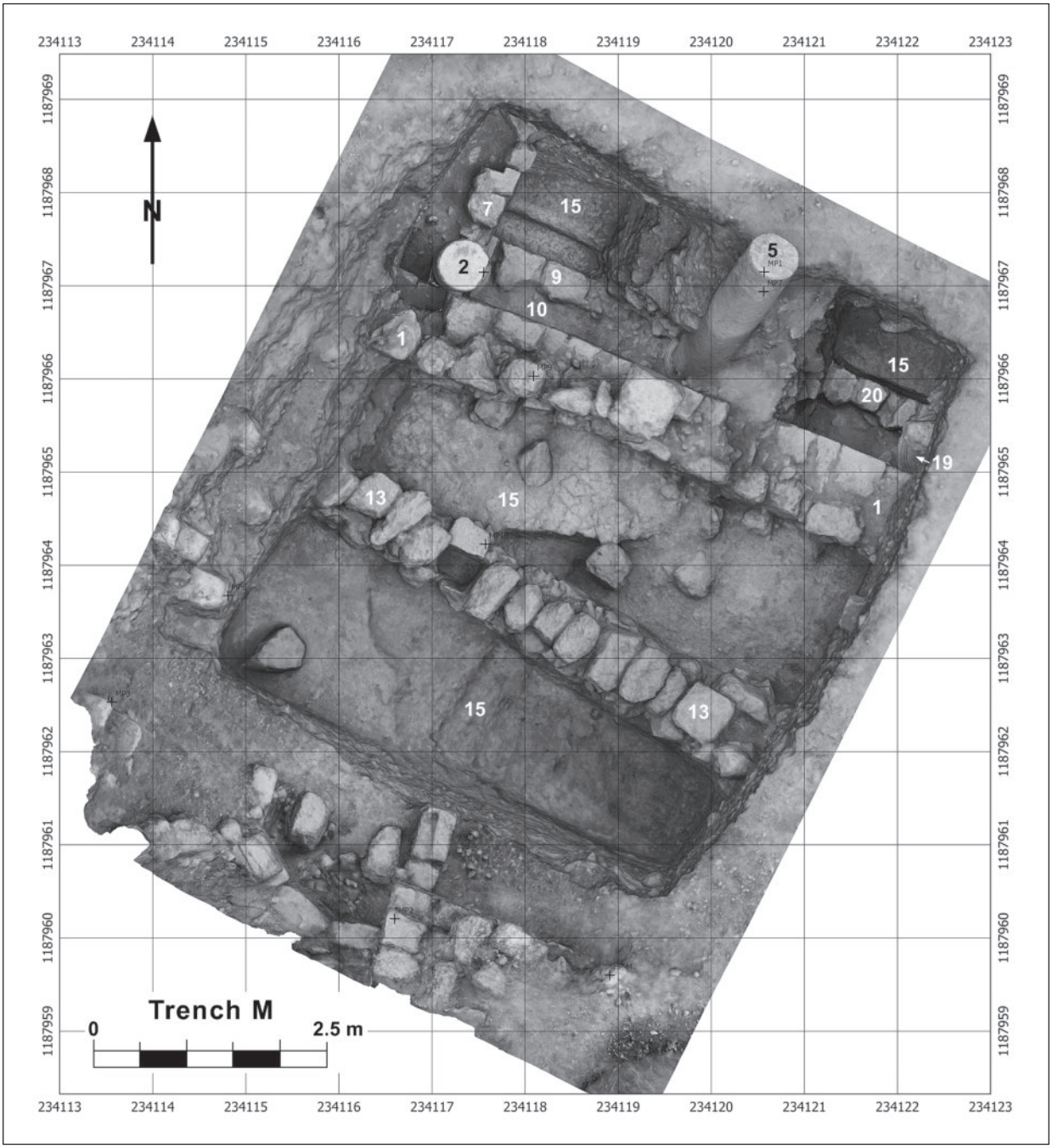
The only roughly dressed rock surface south of wall Ev. 1 slopes about 0.70 m downwards from west to east, giving an uneven surface. Towards the north, the bedrock was cut vertically down to the bottom, as a foundation trench for an older, robbed structure. The bottom of this foundation trench is almost even, only sloping 1.4 cm downwards from west to east, while the slightly higher rock surface immediately north of the rock-cut trench slopes downwards for about 8 cm from west to east. Although the exact width of the rock-cut trench could not be measured without removing parts of the wall Ev. 1, it was possible to estimate that it was at least 1.0 to 1.2 m and at most 1.66 to 1.7 m from west to east. The rock trench could be traced for a distance of 5.12 m, crossing the trench from east to west. Over this distance its northern edge is not completely in line with wall Ev. 1, and it seems to be too wide and not deep enough (only 0.17 to 0.24 m) to be an open water channel. Furthermore, no traces of mortar were detected, either in the trench as a lining or at its edges

71. This new trench measures 5.9 m in width and 6.6 m in length, covering an area of about 37.5 m^2. Line Egelund Nielsen was trench supervisor.

72. Clark and Bowsher 1986, 345 and fig. 3 (locus 014).

73. Clark and Bowsher 1986, 345.

74. Compare with the empty space in the final top plan published by Clark and Bowsher in 1986, 347 fig. 3.



15. J14 Trench M Planum 1-50.

for securing the covering slabs. Hence, it is not a water channel, but is wide enough to have served as a foundation trench for a massive stone wall. Keeping in mind that other beddings were found in Trench I which followed the edge of the cliff, it is conceivable that the rock cliff and the area north of it had been prepared for building structures. The absolute chronology of this rock cut trench is difficult to determine, but in view of the relative chronology a Roman or Byzantine date is conceivable.

Again, the character of the excavated rock surface definitely excludes the possibility that the North Decumanus extended into this region.

Building Phase 2 (Byzantine/Umayyad)

A terrace was built on the bedrock against the northern hill slope. The excavated archi-

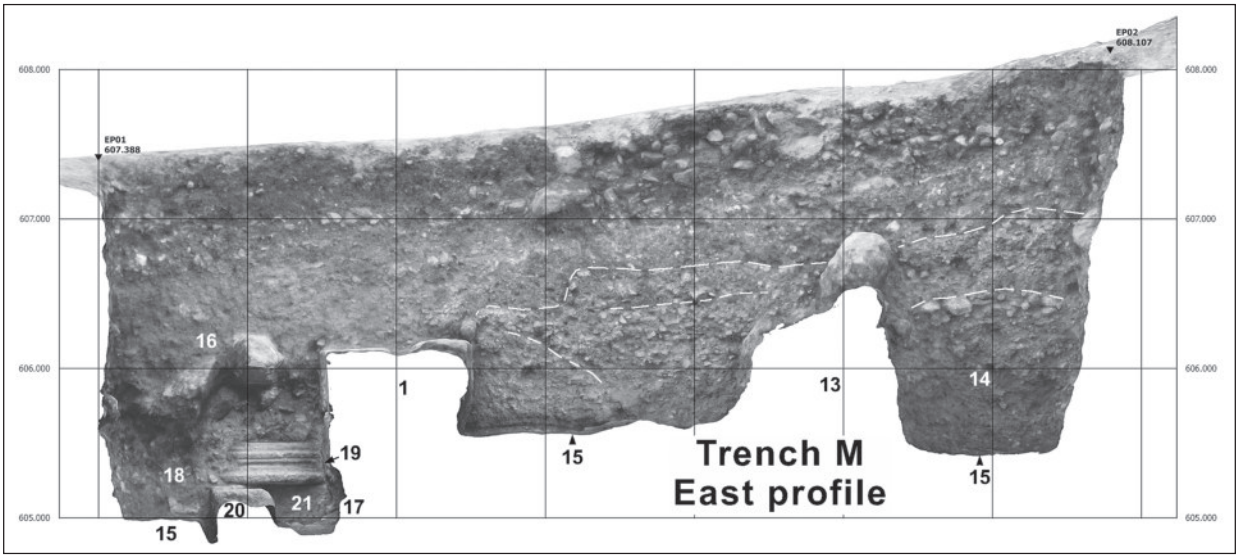
tectural elements suggest that the wall (Ev. 1) and the three columns which were set closely against it belong together, and formed a kind of façade architecture which revetted the northern face of the terrace wall. While the façade opens towards the north, the area south of the wall was filled with soil (**Fig. 16**); the height of this fill could not be determined. The back wall of the façade (Ev. 1) was set against a step in the bedrock, which was up to 1.4 m high. Its northern face consists of ashlar masonry with even courses, whereas the southern side, which was hidden by the terrace fill, was built from irregular stones.

South of wall Ev. 1, the only structure found was a water channel (Ev. 13), which was 0.8 m wide and rested partly on bedrock and on a stony soil fill above gaps in the rock. The channel is rectangular, 0.3 m wide x 0.22 m deep, lined with mortar, and was covered by irregular stones. Excavated for a length of 5.65 m, the channel does not run parallel to the wall. The channel must have been covered completely, because it was built above the bedrock. Horizontal soil layers in the east profile, which run against the wall (Ev. 1) and the water channel (Ev. 13) and furthermore continue in a southerly direction beyond the limits of Trench M, prove that both structures belong to the same building project. Rather than the alternating clay and ashy soil layers observed in this fill by the first excavators[75], we traced only one substantial ash layer in the newly cut east profile (**Fig. 16**), which lay directly above the bedrock, and ran from the south against the wall (Ev. 1). A concentration of Grey Ware storage jar rims (Ev. 14), which was found in the east profile above the bedrock, suggests that the terrace filling should be dated from the Byzantine to the Umayyad period.

A minimum elevation for the terrace and the façade is indicated by the height of the western column; 608.40 m asl. As the building structures in the unexcavated southern part of the 1983 trench (formerly Loci 006 and 007) were built on this terrace fill, they could belong either to this building phase or a later one. The foundation for the building's corner and associated structures is around 607.50 m asl., that is, at least 0.9 m deeper than the top of the western column. Hence, the wall (Ev. 1) would be strong enough to revet a terrace fill of only 1.4 to 2.2 m thickness above bedrock; this is supported by the fact that only the upper parts of the fill (especially in the northeast corner) were affected by erosion.

Concerning the architecture of the façade, neither the wall (Ev. 1) nor the three stylobates (Ev. 4, 22 and 21) stand on bedrock, but rest on a clayish foundation fill (Ev. 10, 17, 20) in the older rock trench. A corresponding floor was not found, which suggests that the levelled rock surface was used for this purpose.

Single rectangular blocks, which were ori-



16. J14 Trench M E-Profile 1-75.

75. Clark and Bowsher 1986, 344–345.

ented north-south and integrated into the foundation of wall Ev. 1 were used as stylobates. Between them, rows of foundation stones (Ev. 10 and 20) were laid, in line with the northern ends of the stylobates. As the blocks were not broad enough for the Attic bases, these were set on them, and the lower tori were cut or, as in the case of the uncut easternmost base (Ev. 19), they also partly rest directly on the foundation stones (Ev. 20) and the soil fill. The Attic bases on the stylobates are similar in shape and dimensions but are not identical; differences are recognizable concerning their thickness and absolute elevation[76]. The distance between the western torus, which is the lowest, and the middle base is 1.90 m, while the distance between the middle and eastern bases is 1.88 m. Only two columns were found (Ev. 2 and 5); both are plain, without thickened ends or volutes. The middle column shaft (Ev. 5) is slightly longer at 2.98 m, with the western shaft only 2.91 m long. As both the stylobates and the Attic bases were built into the back wall, the column shafts stand very close to it. This fact led us to the conclusion that this colonnade should most likely be reconstructed as a simple façade.

V. Clark and J. Bowsher suggested that the colonnade could belong to the south side of the decumanus[77]. However, they at the same time excluded the possibility that a paved street ever existed in the excavated area. This fits with our excavation results in Trenches G, I and M, but we do not agree that the columns were part of a colonnaded North Decumanus.

The colonnades of the North Decumanus between the Tetrapylon and the North Theatre are Ionic, except for four Corinthian columns on the north stylobate[78]. Furthermore, while the Corinthian columns are made of monolithic shafts with swollen ends, the Ionic columns are made from several drums[79]. The examples which do not fit their bases indicate that the Ionic columns of the North Decumanus had been re-used[80]. Sometime later, some of the Ionic columns were moved from the North Decumanus to the Church of Bishop Isaiah, west of the North Theatre[81]. Whether the columns in Trench M belong to the North Decumanus, or whether some of the columns found their way further to the west, can only be ascertained by a comparison of dimensions and similar features. The distance between the bases on the North Decumanus is approximately 1.90 m, and is thus similar to the distances of 1.88 and 1.91 m for the bases in Trench M. As the plain monolithic column shafts in Trench M do not have swollen ends like the Corinthian monoliths on the North Decumanus, a comparison has to concentrate on the Ionic columns from there, which seem to have been made on the whole from short drums, thus requiring at least four drums to reach their length of about 4.5 m. Their maximum diameters measure between 0.62 to 0.66 m. This information fits well with their base diameters of about 0.98 to 1.0 m[82]. Compared with these dimensions, the columns and bases in Trench M are considerably smaller. The length of the western column shaft (Ev. 2) in Trench M measures 2.91 m and has a maximum diameter of 0.58 m, while the fallen middle column (Ev. 5) has the same diameter but is slightly longer, measuring around 2.98 m. The diameters of all three bases are almost the same, measuring 0.88 m, which is 10 cm smaller than the bases used on the decumanus. To sum up, neither the excavation results nor the dimensions of the columns hint at a connection between the architectural features in Trench M and the North Decumanus. Therefore, the columns in Trench M must stem from another building.

Concerning the dating of the terrace façade and the later alteration of the area north of it in the next phase, a date from the late Byzantine or early Umayyad period is most likely[83].

76. The thickness of the bases are: 0.254 m. for the western base (Ev. 3); 0.254 m for the middle base (Ev. 6); and 0.28 m for the eastern base (Ev. 19). The tops of the western (Ev. 3) and the eastern (Ev. 19) bases are at almost the same level, 605.478 m asl. However, the middle base (Ev. 6) rises 5.4 cm above the level of its flanking bases.

77. Clark and Bowsher 1986, 345.

78. Ball *et al.* 1986, 390.

79. Compare Ball *et al.* 1986, 406 pl. XI (Corinthian) with p. 407 pl. XII (Ionic).

80. This and similar observations leads W. Ball to the conclusion that the columns were taken from the original Ionic south Cardo, when it was widened and converted to the Corinthian order. Cf. Ball *et al.* 1986, 390.

81. Cf. Ball *et al.* 1986, 390 with n. 73 and Clark 1986, 307.

82. As Ball *et. al.* 1986, Clark 1986 and Nassar 2004 all fail to provide measurements for the columns and bases, the dimensions were calculated for the most part from Ball *et. al.* 1986, 382 fig. 16.

83. Although the finds analysis is not yet complete, a Byzantine or later date is most probable for the important Evidences (Ev. 11, 12, 14, 17 and 18) in the second and third phases.

Building Phase 3 (Byzantine/Umayyad)

The façade was altered during this phase, and at least one room was built against it. The only floor found here (Ev. 11, above Ev. 15), belongs to this phase. It is of yellowish clay, and belongs to a later wall (Ev. 7) which was set against the western column shaft (Ev. 2) above the level of the column base (Ev. 3)[84]. The clay floor (Ev. 11) lies on a thick foundation layer (Ev. 12)[85] in the west, which covers the northernmost rock surface and part of the stylobate (Ev. 4). In the previously excavated part, the clay floor (Ev. 11) does not run against the older wall (Ev. 1) because it was dug through by the first excavators, and the gap filled with excavation dump (Ev. 9). The wall (Ev. 7) is 0.45 m wide and preserved to a height of 0.8 m. Only 1.42 m of it could be excavated between the column and the north baulk. Close to the column shaft, a doorframe with no threshold was found, indicating an interior room west of the wall. The roughly built wall, the simple clay floor, and the missing threshold, all point to a more basic character of the rooms installed in front of the façade.

The evidence of the collapse layer (Ev. 8) found on both sides of the wall (Ev. 7), and thick erosion layers on top of that, indicates that occupation seems to have ceased on this part of the hillslope after the room was destroyed.

Bibliography

Avni, G.
2014 *The Byzantine-Islamic Transition in Palestine: an Archaeological Approach*. Oxford.

Ball, W., Bowsher, J., Kehrberg, I., Walmsley, A. and Watson, P.
1986 The North Decumanus and North Tetrapylon at Jerash: an Archaeological and Architectural Report. Pp. 351–409 in F. Zayadine (ed.), *Jerash Archaeological Project 1981–1983*, I. Amman.

Browning, I.
1982 *Jerash and the Decapolis*. London.

Brun, J.-P.
2004 *Archéologie du vin et de L'huile de la Préhistoire à L'epoque hellénistique*. Paris.

Butler, H. C.
1913 *Publications of the Princeton University Archaeological Expedition to Syria in 1904-1905 and 1909, Division II. Ancient Architecture in Syria, Section A, Southern Syria, Part 3, Umm Idj-Djimâl*. Leiden.

Clark, V.
1986 The Church of Bishop Isaiah at Jerash. Pp. 303–318 in F. Zayadine (ed.), *Jerash Archaeological Project 1981–1983*, I. Amman.

Clark, V. A., and Bowsher, J.
1986 A Note on Soundings in the Northwestern Quarter of Jerash. Pp. 343–349 in F. Zayadine (ed.), *Jerash Archaeological Project 1981–1983, I*. Amman.

Clark, V. A., Bowsher, J., and Stewart, D.
1986 The Jerash North Theater: Architecture and Archaeology 1982–1983. Pp. 205–302 in F. Zayadine (ed.), *Jerash Archaeological Project 1981–1983, I*. Amman.

Gawlikowski, M.
1986 A Residential Area by the South Decumanus. Pp. 107–136 in F. Zayadine (ed.), *Jerash Archaeological Project 1981–1983, I*. Amman.

Jackson-Tal, R. E.
2012 The Early Islamic Glass Finds from Khirbet El-Thahiriya. *Atiqot* 71: 57–72.

Kalaitzoglou, G., Knief, β., Lichtenberger, A., Pilz, D., and Raja, R.
2012 Report on a Geophysical Prospection of the Northwest Quarter of Gerasa/Jarash 2011. *ADAJ* 56: 79-90.

Kalaitzoglou, G., Lichtenberger, A., and Raja, R.
2013 Preliminary Report of the Second Season of the Danish-German Jarash North-West Quarter Project 2012. *ADAJ* 57: 57-79.
2017 The Danish-German Jarash North-west Quarter Project 2013, Preliminary Field Report. *ADAJ* 58: 11-37.

Kehrberg, I.
2011 Roman Gerasa Seen from Below: an Alternative Study of Urban Landscape. *Australasian Society for Classical Studies* 32: 1–18.

Kennedy, D.
2007 *Gerasa in the Decapolis: a 'Virtual Island' in Northwest Jordan*. London.

Kraeling, C. H.
1938 *Gerasa: City of the Decapolis*. New Haven.

Lepaon, T.
2011 Un Nouveau Plan Pour Jarash/Gerasa (Jordanie). *ADAJ* 55: 409-420.

Lester, A.
2003 Glass Bottles and Vials from Tiberias. Pp. 158–164 in *Annales du 15e congrès de l'Association International pour l'Histoire du vere*, New York, Corning 2001. Nottingham.

Lichtenberger, A., and Raja, R.
2012 Preliminary Report of the First Season of the Danish-German Jarash Northwest Quarter Project 2011. *ADAJ* 56: 231-239.
2015 A Hoard of Byzantine and Arab-Byzantine Coins from the Excavations at Jerash. 6. Jerash 2014. *Numismatic Chronicle* 175: 299–308.

Lichtenberger, A., Lindroos, A., Raja, R., and Heinemeier, J.
2015 Radiocarbon Analysis of Mortar from Roman and Byzantine Water Management Installations in the Northwest Quarter of Jerash, Jordan, *Journal of Archaeological Science*: Reports 2 (open access: http://dx.doi.org/10.1016/j.jasrep.2015.01.001): 114-127.

Lichtenberger, A., Raja, R., and Sørensen, A. H.
2013 Preliminary Registration Report of the Second

84. The base of the later wall (Ev. 7) lies 0.35 m above the bedrock, at 605.42 m asl.

85. The east corner of the trench (Ev. 18) possibly corresponds with this fill; however, the floor was not preserved in this place.

Season of the Danish-German Jarash Northwest Quarter Project 2012. *ADAJ* 57: 9-56.

2017 The Danish-German Jarash Northwest Quarter Project 2013, Preliminary Registration Report. *ADAJ* 58: 39–103.

Nassar, M.

2004 *The Architectural Elements and Decoration at Gerasa (Jerash) during the Roman Period (Typological and Comparative Studies)*. Berlin.

Marco, Sh., Hartal, M., Hazan, N., Lev, L., and Stein, M.

2003 Archaeology, History, and Geology of the A.D. 749 Earthquake, Dead Sea Transform. *Geology* 31: 665–668.

Raja, R.

2012 *Urban Development and Regional Identity in the Eastern Roman Provinces, 50 BC – AD 250: Aphrodisias, Ephesos, Athens, Gerasa*. Copenhagen.

Raja, R. and Lichtenberger, A.

2016 Jerash in the Middle Islamic Period. Connecting Texts and Archaeology through New Evidence from the Northwest Quarter. *ZDPV* 132/1: 63-81.

Russel, K. W.

1985 The Earthquake Chronology of Palestine and Northwest Arabia from the 2nd through the mid-8th Century A.D. *BASOR* 260: 37–60.

Seigne, J.

1992 Jérash Romaine et Byzantine: Développement Urbain d'une ville Provinciale Orientale. *SHAJ* 4: 331-356.

Tsafrir, Y. and Foerster, G.

1992 The Dating of the 'Earthquake of the Sabbatical Year' of 749 C.E. in Palestine. *BSOAS* 55/2: 231–235.

1997 Urbanism at Scythopolis-Bet Shean in the Fourth to Seventh Centuries. *DOP* 51: 85–146.

Zayadine, F. (ed.)

1986 *Jerash Archaeological Project 1981–1983, I.* Amman.